

PULP & PAPER

FEBRUARY 1960

Paper Week "Preview"
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Challenging Sixties: II
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New Interest in Arizona
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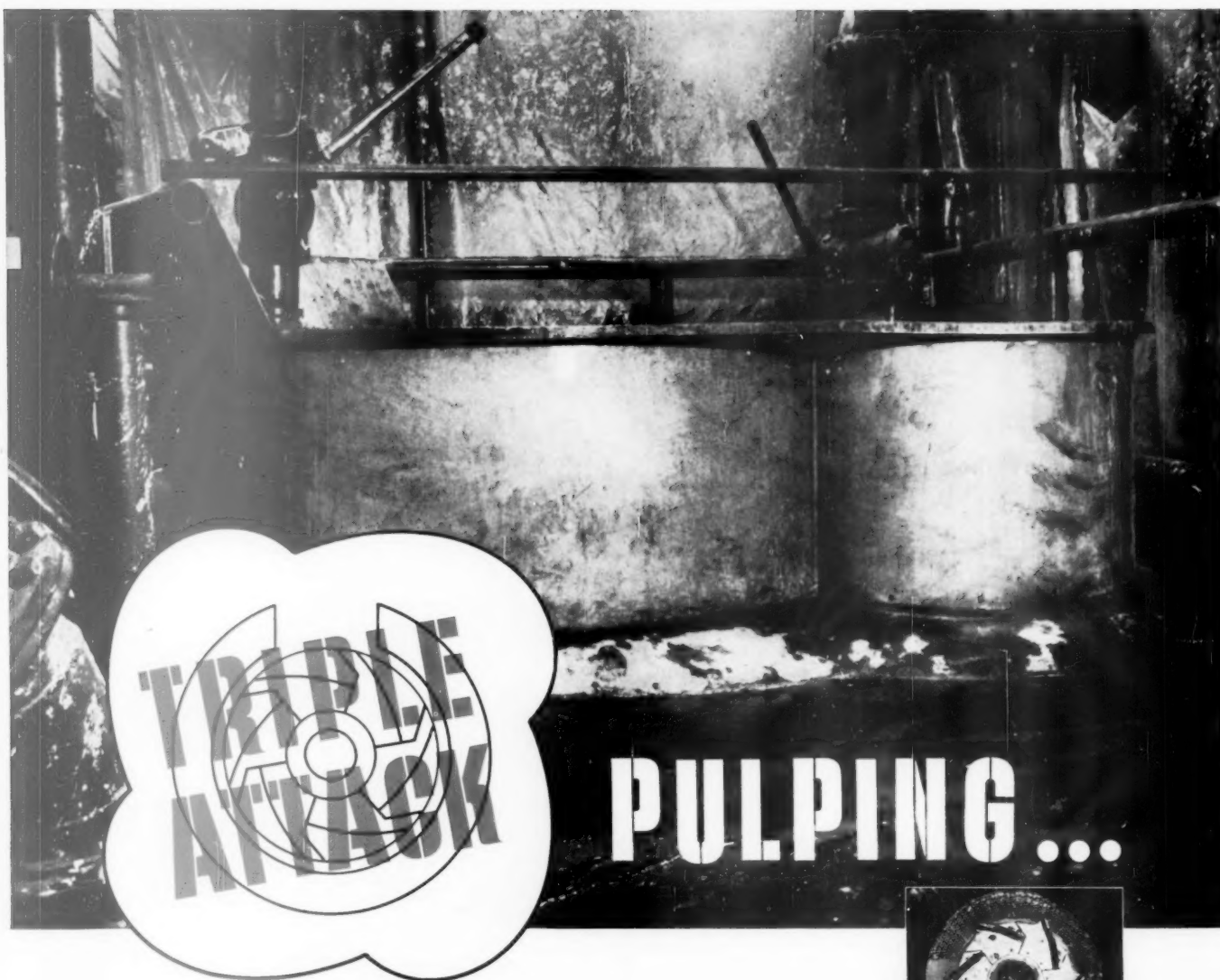
**Japan
Builds
Its
First
Mill
in
America**

**Sets
New
Standards**

**Introduces
New
Techniques**

see page 80





what makes this new method so successful?

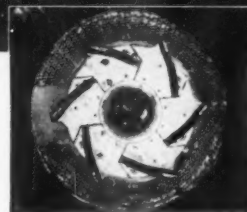
Triple Attack pulping is an advanced method, exclusive in the new Emerson Pulper, that multiplies the number of defibering cycles which take place within a given period. Thus, it guarantees maximum defibering on all types of stock — in 20 to 30 minutes — wet strength slightly longer. It also offers complete pulping at 8 to 12% consistency, uniform mixing, fast charging and dumping, and extremely low power consumption at full or partial capacity.

The success of the Emerson Triple Attack Pulper lies in its advanced lobe shape, tapering tub walls, conical bottom and effective impellor action.

Pulp fibers are subjected to a relentless triple attack by (1) the violent agitation of the impellor, by (2) the force and friction of fiber contact with the specially designed tub walls, and by (3) the vigorous hydraulic defibering action caused when on-coming stock streams from the impellor hit the flow of stock returned by the tub walls.

Because of this exclusive tapered and lobed wall construction, all "dead spots" are eliminated. Triple Attack pulping provides complete defibering by the fastest, most economical method yet devised.

For further information, please write to The Emerson Manufacturing Co., Division of John W. Bolton & Sons, Inc., Lawrence, Massachusetts.



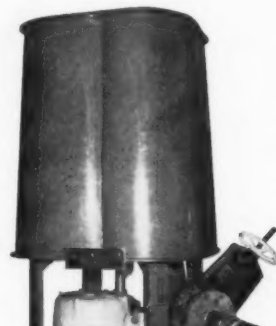
The rotor and extraction plate



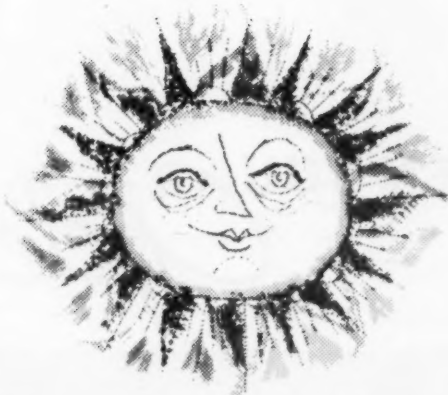
View of vortex and stock flow at 8-9% consistency

Emerson **TRIPLE ATTACK PULPER**

A product of **BOLTON EMERSON**



**Even old Sol
envies**



Rice Barton Dryer Sections

The most efficient drying systems under the sun are another Rice Barton contribution to papermaking progress. Once considered neglected and costly, today drying capacity can be stepped up substantially by improved location and spacing of dryers and the proper combination of steam and air units.

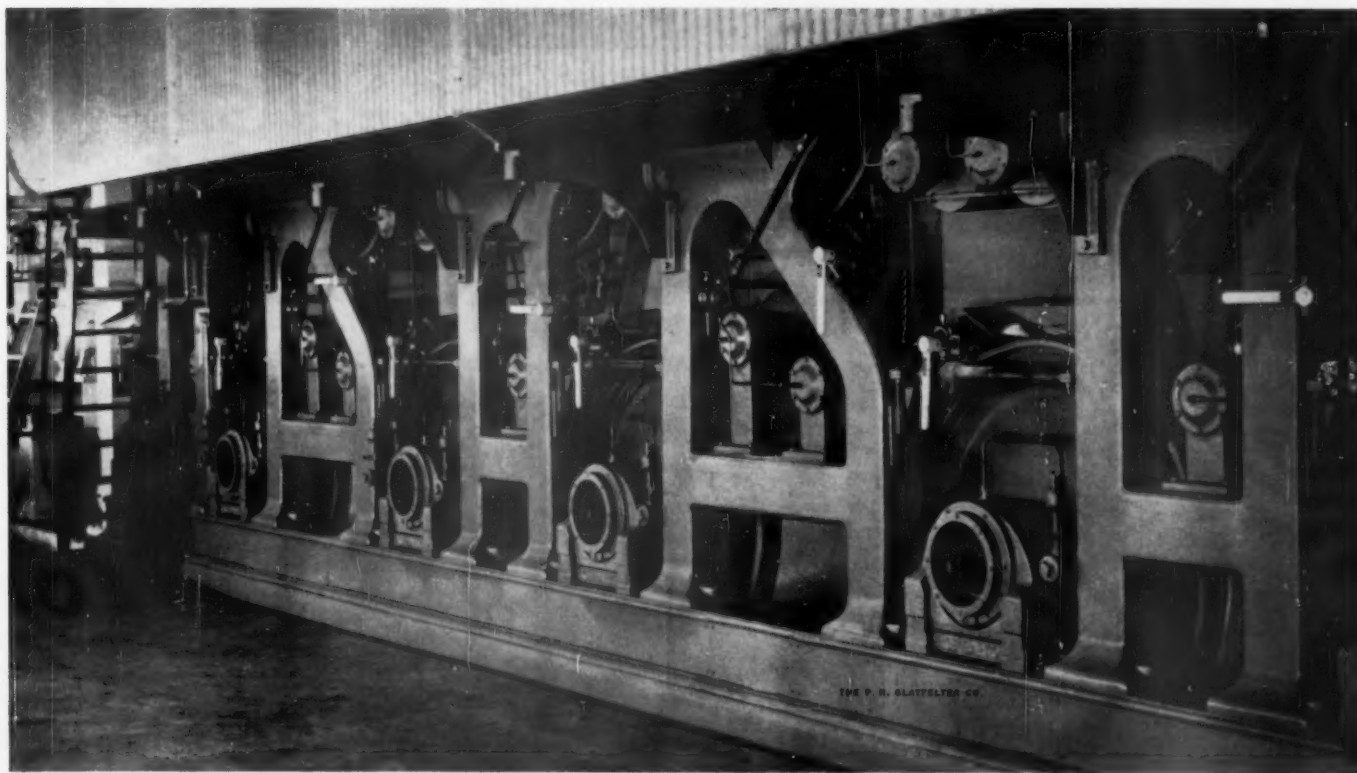
Furthermore, thermal efficiency can be increased and dryer sections shortened on both new installations and modernization of old.

Experience gathered since 1837 has made Rice Barton dryer experts, particularly leading the industry in perfecting Air Drying. Let us explain the flexibility and economy with which you can increase your capacity. Write for latest information.

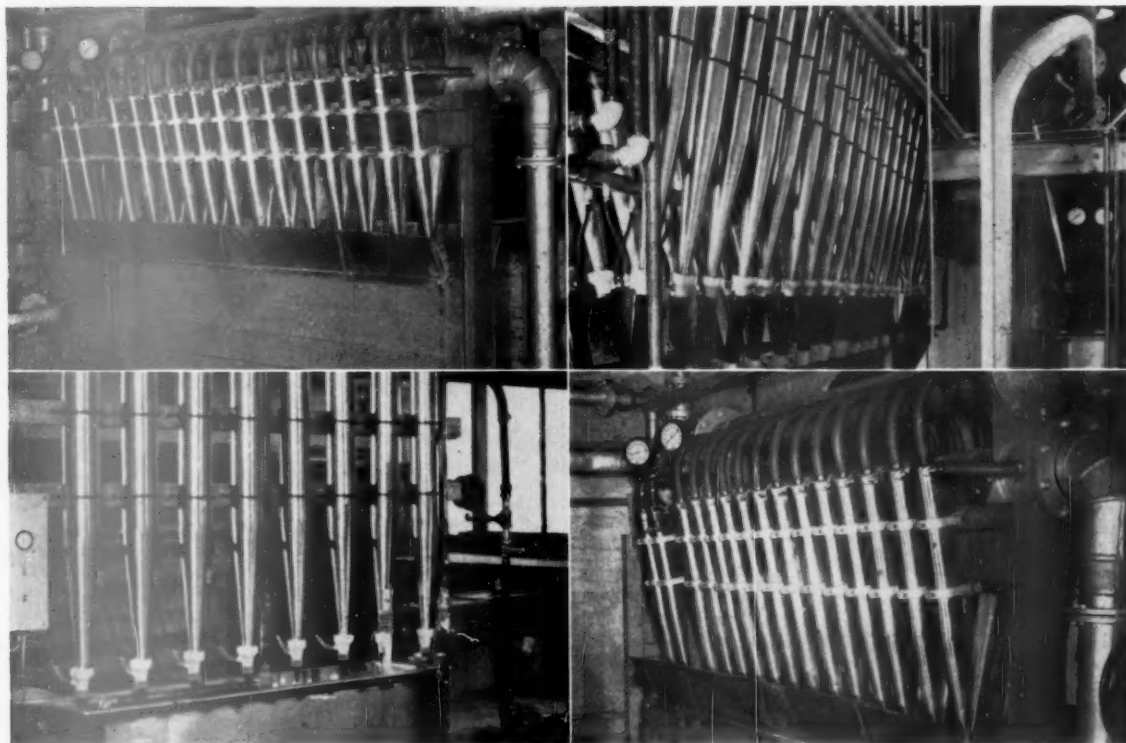


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WHEN YOU *Cycleclean* YOUR STOCK...



IT'S *Easier to Make — Easier to Sell*

Bird Cyclecleans whisk out shives and specks, improve fibre hydration, reduce breaks and rejects, increase output of uniformly clean, salable paper.

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MACHINE
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Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

BIRD MACHINE'S
50th YEAR
OF SERVICE TO INDUSTRY

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71 Outlook, Innovations Set for Paper



The industry's hopes for the 60s will be in the limelight as APPA, SAPI and TAPPI take over midtown New York February 21-25. Presiding at APPA will be President J. R. Kimberly (left).

74 The Sixties—Era of New Ideas



Hopes and expectations of the 1960s—a vital decade for pulp and paper—are outlined in Part 2 of "The Challenging Sixties," another PULP & PAPER exclusive. Here, the emphasis is on pulping, paperboard, coating, research.

80 Exclusive: Alaska Mills on Stream



First mill on the North American continent to be Japanese-owned, Alaska Lumber & Pulp at Sitka is now producing MgO sulfite dissolving pulp at 340-ton daily rate. Highlights of new departures in equipment and processes.

105 New Twist to Sitka Logging



Supplying national forest timber to the Sitka, Alaska mill of Alaska Lumber & Pulp involves company and contract logging in addition to purchases. Annual cut of 140,000,000 ft. is accomplished through such new twists as chemical floatants.

CIRCULATION DEPT., 500 Howard St., San Francisco 5, Calif. C. C. Baake, Circ. Mgr. Send subscription orders and changes of address to PULP & PAPER, above address. Include both old and new addresses. RATES (including World Review Number): U.S., Canada and Latin America—1 yr., \$5; 2 yrs., \$8; 3 yrs., \$10. Other countries—1 yr., \$7. Sterling area orders may be sent to: Harold P. deLoose Ltd., 7 St. James Square, Manchester 2, England. POSTMASTER: Send form 3579 to Circ. Dept. PULP & PAPER.

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B.F. Goodrich



Better paper, made faster with B.F. Goodrich suction press rolls

Mills east of the Rockies can save money on freight costs

WITH a B.F. Goodrich suction press roll on your paper machine, you get maximum water removal and better paper formation even at high speeds. That's because B.F. Goodrich uses a special tough rubber compound for the cover that keeps the drilled holes from cupping out. This reduces shadow marking, keeps the roll operating at top efficiency for a long time.

In the picture you see the suction press roll on a new paper-making unit

at Crocker Burbank & Co. Association, Fitchburg, Mass. On this new equipment, with B.F. Goodrich rubber-covered rolls used throughout, production of high-grade printing papers has been doubled. The rolls have needed no maintenance of any kind.

Many paper mills east of the Rockies have found that by specifying B.F. Goodrich rubber-covered suction rolls, they can save on freight costs. Reason is that the B.F. Goodrich plant is much

closer than any other roll-covering facility to the companies that specialize in drilling the holes.

Whether you're buying a new paper machine or having suction press rolls re-covered, be sure to specify B.F. Goodrich to your machine builder. You'll save money in the beginning, and get longer and more efficient service. For more information on these suction press rolls or any of the rolls B.F. Goodrich makes for the paper industry, write B.F. Goodrich Industrial Products Co., Dept. M-782, Akron 18, Ohio.

B.F. Goodrich *paper mill rolls*

PULP & PAPER

The Editor Reads His Mail



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PULP & PAPER — February 1960

Proof of Readership

—New York
Editor: In reading the story about Celanese in the December issue of *Fortune*, on Page 127, I came across the statement that they had gone in for "total marketing". If needed, this is further proof of your readership, because to the best of my knowledge you were the first to use that phrase editorially.

EDWARD MCSWEENEY
Vice Pres., Perkins-Goodwin Co.

Non-Economic Forest Use

—Washington, D. C.
Editor: The Multiple Use Concept applied by the U.S. Forest Service to its management of the national forests is receiving much support now that the dangers of single use for recreational purposes is threatening many acres of productive forest land. As applied by the Forest Service, multiple use concepts still recognize, over most of the national forest area, the dominant uses for which the forests were established—timber production and watershed protection. As a defense against the growing demands of non-economic users of the forests, some persons have suggested and are willing to support legislation establishing multiple use as a basic requirement of national forest management. We believe that such proposals should be studied for their probable results before foresters and forest industries jump on the bandwagon.

The Forest Service has shown that it can apply the multiple-use concept to the primary purposes of national forests. If, however, federal foresters were forced by law to recognize the possibility of non-economic uses as dominant, it is quite probable that large areas could be relegated, by force of unenlightened public pressure, to non-economic pursuits. It would be far better for foresters and forest industries to educate the public and the legislators on the need for economic use and development of the forests than to compromise on a program of attrition.

ALBERT G. HALL
Forestry Relations Counsel
and Consulting Forester

Dutch Statistics

Editor: The 1959 World Review Number of PULP & PAPER carries on page 206 statistics on the Dutch paper market. Some of these figures are not quite clear to us, i.e., Paper and paperboard exports, pulp and cellulose imports (for paper), and woodpulp imports.

Will you please give us some elucidation?

TAMBOTER & CO. NV

Editor's Note: At least two errors were allowed to pass in our Dutch tabulation:

(1) The figures for paper and paperboard exports were followed by the parenthetical expression (m³). This was incorrect, and the cubic meter figures should have applied only to pulpwood imports and exports.

(2) Pulpwood imports were erroneously listed as "wood pulp imports" and should have been given in cubic meters instead of metric tons. Thus, the figures (in cubic meters) should have appeared as 262,794 (for 1958) and 504,696 (for 1957). The same applies for pulpwood exports—14,480 and 6,375 cu. meters, respectively).

The figures for pulp and cellulose imports (for paper) were correct as listed.

First Class Job

—Walla Walla, Wash.
Editor: Mr. Louis Blackerby has done a first class job in his report on the new Cascade Kraft mill in the December issue of PULP & PAPER. Not only are the pictures unusually good, but Mr. Blackerby was able to pick out the most characteristic features of construction to emphasize.

W. O. HISEY
Director, Central Engineering
Div.,
Boise Cascade Corp.

"Only One of Many"

Mt. Prospect, Ill.
Editor: PULP & PAPER is a remarkably fine publication and I dare say we are only one among your many, many enthusiastic supporters.

L. G. JANETT
Vice President
J. O. Ross Engineering

Paper sculpture by Giuseppe Baggi



Pulp from Gottesman means...

PUNCTUALITY!

*Bleached and Unbleached Sulphite • Bleached Hardwood • Groundwood
Bleached, Semi-Bleached, and Unbleached Kraft*



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MONTHLY REPORT — WORLD NEWS

FOLLOWING TREND OF EXPANDING NATIONAL ECONOMY . . . paper and board expected to achieve all-time production record this year, according to U.S. Dept. of Commerce. U.S. output estimated at 36,000,000 tons, topping by 6% the previous high (1959). Curtailing an even higher 1959 mark was the 116-day steel strike.

FIRST SHIPMENT FROM ALASKA LUMBER & PULP . . . Some 2,060 tons MgO sulfite dissolving pulp were recently shipped to Japan on the Columbia Maru, marking official operation of Sitka mill of Japanese-owned company. First digester blown November 18; on December 1 output was at 150 tons per day dissolving grade and on December 10, 250 tons. Design capacity: 340 tons. (See PULP & PAPER's exclusive report in this issue.)

INCOMES UP, OUTLOOK GOOD . . . in the North American industry: Federal Paper Board Co. Inc. expects 1959 net earnings to total \$4,500,000, up \$72,000 from 1958. Sales of West Virginia Pulp & Paper Co. are expected to rise 10% during year ending October 31; earnings should improve even more. Satisfactory fourth quarter pushed 1959 earnings of Consolidated Paper Corp. Ltd. slightly ahead of 1958's \$12,574,434. Fibreboard Paper Products Corp. expects earning power of present expansion to be reflected in 1961 but probably not this year; 1959 earnings expected to top 1958, but no specific predictions have been made. British Columbia Forest Products Ltd. had all-time record sales of \$44,967,000 for fiscal year ended September 30; net profit: \$3,224,503. Largest volume of sales in its history reported by Strathmore Paper Co.

COMPLETION OF AN \$800,000 EXPANSION, IMPROVEMENT PROGRAM . . . at boxboard mills in Mobile, Ala., and Franklin, Ohio, announced by Stone Container Corp. At Mobile, paper machine was enlarged from seven to eight cylinders. Franklin installations included: seven new Selectifier screens and new sheet cutter.

PROGRESS AT TENNESSEE RIVER PULP & PAPER CO. . . . In Counce, Tenn., where completed projects include office buildings, flumes, woodyard area, concrete foundations, underground piping. Newest equipment ordered: a double-chamber Koppers electrostatic precipitator to handle 125,000 cu. ft. gas and 97.5% solid matter.

NEW NATIONAL POLICY FOR CANADIAN FOREST INDUSTRY . . . advocated by Mines, Forests & Waters Committee, Canadian House of Parliament. Criticizing government for failure to help the industry, committee suggested (1) provincial forest taxation — not federal; (2) government aid in marketing; (3) promotion of sales credit and (4) assistance in research, reforestation and access road construction.

WORLD NEWSPRINT DEMAND STRONG FOR 1960 . . . according to Newsprint Assn. of Canada. For first time in three years, production will increase faster than capacity. North American capacity is predicted at 9,950,000 tons, up 6 1/2% over 1958. Production will be 8,670,000 tons, increase of more than 10%.

MILK STORAGE WITHOUT REFRIGERATION . . . is predicted by Real-Fresh Milk Inc., Visalia, Calif. As long as paper container remains unopened and undamaged, milk will remain fresh for extended period under normal conditions. Heart of the aseptic packaging is Tetra Pak, a pyramid-shaped container made by Crown Zellerbach Corp. and developed in Sweden. A three-ply laminate (paper, aluminum foil and polyethylene coating on the inside) has solved problem of complete protection in a leak-proof, strong and odorless package.

NEAR RECORD LEVELS FOR PULP, PAPER MACHINERY BUILDERS . . . is forecast for 1960 by the Dept. of Commerce. It is probable that 1959 shipments will be 15% greater than 1958. Further 10-15% increase possible for 1960 "if conditions favorable to the industry continue."

... Fluid Power **news**

**REPORT
NO. 12,105
NEW SECTION
AND DRIVE
IMPROVES
PRODUCT**

From Oilgear Application-Engineering Files

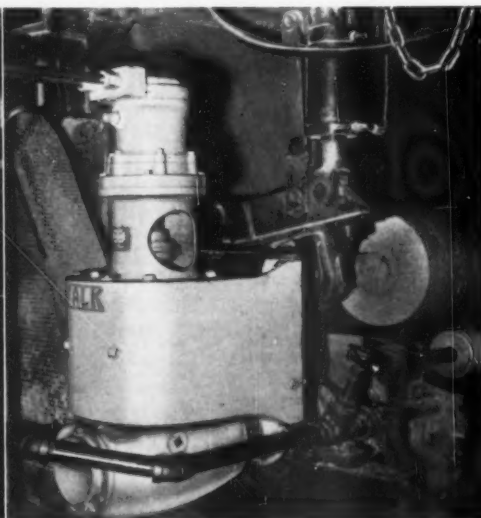
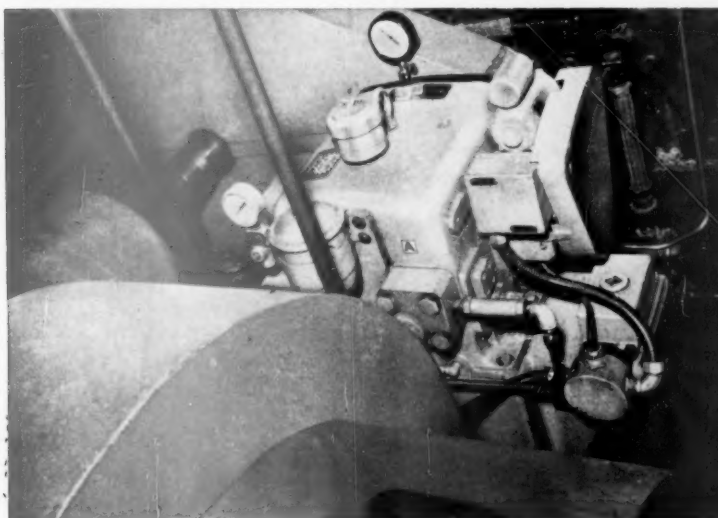
HOW OILGEAR HELPED SOLVE DRIVE PROBLEM FOR A NEW PAPER MACHINE SECTION

CUSTOMER: A Large Midwestern Paper Manufacturer.

DATA: To improve the finished surface of certain types and grades of paper, this manufacturer decided to insert a new sizing and smoothing section between existing sections of one of their paper machines. **Requirements:** 1. New section drive rpm must remain in same preset speed ratio with first dryer section roll regardless of over-all machine speed; allow precise, minutely controlled variation to increase or decrease wet sheet tension; hold constant speed within 6% regardless of increase or decrease of section roll pressures. 2. Section drive to be inoperative at will without use of clutches

... machine to operate with, or without the new section for dual purpose processing. 3. Drive must be smooth, positive ... without lag, shocks, or surges. 4. Drive must fit within extremely limited, available space, and be direct-connected to new section sizing roll. 5. Complete, individual control from a convenient, remote, push button station. 6. Dependability, with a minimum of installation, or maintenance "downtime."

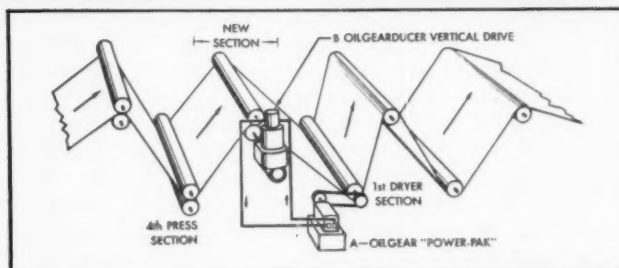
Note: A mechanical drive was considered, but space and control requirements would involve costly, major rebuilding of the entire machine.



SOLUTION: Oilgear Application-Engineers, working in cooperation with company engineers, analyzed the speed, torque, control, and space limitations of this installation; and recommended an Oilgear "Any-Speed" drive consisting of a separate, heavy-duty, Oilgear pump and motor for the following reasons. 1. An Oilgear Type "DE," Variable Displacement Pump with Electric Remote Control and Reservoir fitted into the very limited space available, and could easily be driven from the first dryer roll. 2. A standard Oilgear reducer—an Oilgear Constant Displacement Fluid Power Motor with integral right-angle gear reducer—could be direct-connected to the new section sizing roll. 3. A simple pushbutton station for controlling this new section could be conveniently mounted on the opposite side of the paper machine. Actual operation has proved that all initial requirements were either met or exceeded.

Being a positive displacement drive, the direct-connected sizing roll rpm remains in the same speed ratio with the first dryer roll regardless of over-all machine speed. Original constant speed requirement—within 6%—is exceeded in actual operation ... speed remains stable within 0.5% max. variation under full min. to max. load change. Two remote control station pushbuttons command the electric pilot control motor to increase or decrease pump displacement, changing the hydraulic motor speed and the section to machine ratio ... precisely varying tension on the wet sheet. Section can be independently started and stopped from this station while the paper machine is running. Exact drive load and temperature are indicated. In over four years of continuous, high-speed service, there has been no reported maintenance on this drive.

This paper manufacturer has also Oilgear-equipped a laminator winder drive; the center winder on a super-calender stack; the unwind and rewind drives on another super-calender; five "wet-end" drives of another paper machine;



Oilgear Variable Displacement Pump (A) is driven from the first dryer section to keep the new sizing and smoothing press section speed in direct relation to the dryer section speed. Actual installation is shown in photo above, left. The small, geared-head pump control motor which changes pump stroke can be seen to the right of the pump. Controlled Fluid Power from the pump drives vertically mounted Oilgearducer (B), direct-connected to the sizing roll of the new section ... as shown in photo above.

plus other applications in the mill and powerhouse. This user, like many others in all phases of all industry, knows that for the lowest cost per year—it's Oilgear! Additional drive application data is available—Bulletins 10600, 10051-G, and "News" 3, 5, 8—on request, without obligation.

For similar practical solutions to YOUR rotary or linear drive and control problems, call the factory-trained Oilgear Application-Engineer in your vicinity. Or write, stating your specific requirements, directly to ...

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Application-Engineered Controlled Motion Systems

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MONTHLY REPORT — WORLD NEWS

BIG CANADIAN ACQUISITION . . . is proposed by Consolidated Paper Corp. Ltd., which recently moved to buy four multiwall bag and packaging plants and other assets of St. Regis Paper Co. (Canada) Ltd. Price will be \$1,600,000 and 785,000 common shares. New subsidiary—St. Regis-Consolidated Packaging Ltd.—will be in charge of plants in Vancouver, B.C.; Dryden, Ont., and St. Lambert and Cap de la Madeleine, Que. St. Regis will have interest.

HARDWOOD NEWSPRINT MILL IN LOUISIANA . . . will be built by H. K. Ferguson Co., Cleveland. Plant of Noralyn Paper Mills Inc. at Busche will produce 350-400 daily tons.

INCREASED PULP, PAPER PRODUCTION HELPED SULFUR . . . realize its biggest year on record, according to Texas Gulf Sulphur Co., U.S.A. World consumption was 16,000,000 tons, as against 15,247,000 in 1958.

EASIER READING, REDUCED EYE FATIGUE . . . promised by a new printing technique patented (2916304) by Whiteford Paper Co. Inc., New York, N.Y., U.S.A. Formula combines lightly-tinted papers with color-related inks to obtain optimum reflectance contrast.

UP 1,749,000 TONS . . . according to preliminary estimates, the U.S. turned out a record 15,900,000 tons paperboard during 1959, compared to 14,241,000 in 1958. The old record, 14,367,000, was set in 1956.

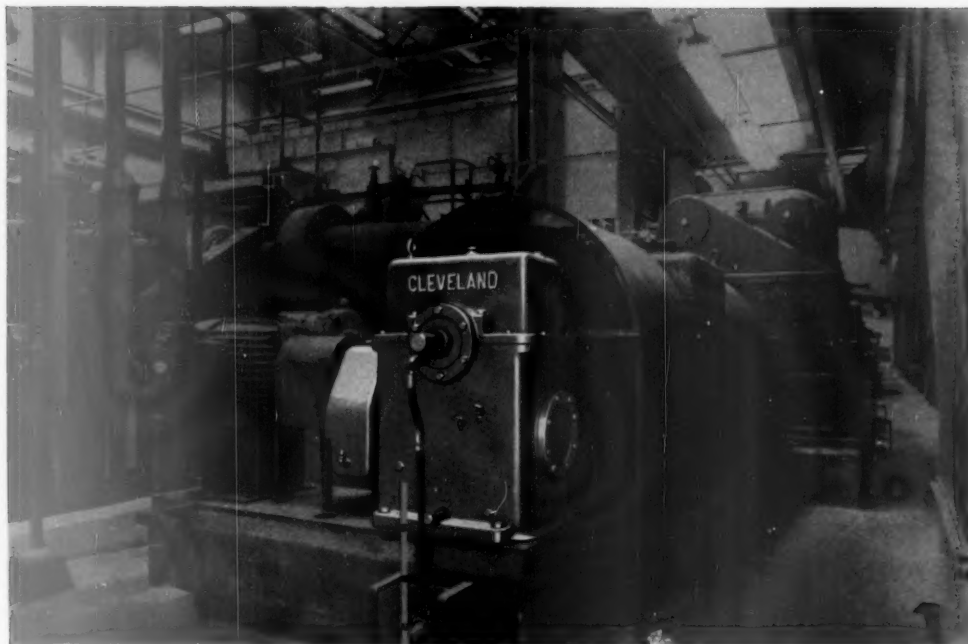
FLORIDA TAKES LEAD IN PULP PRODUCTION . . . says a report from U.S. Forest Service. Relegated to No. 2 position is the State of Washington, leader since 1939. Florida's daily mill capacity is 8,280 tons, Washington's 7,975.

FULL PRODUCTION AT ST. FRANCISVILLE . . . is announced by Crown Zellerbach Corp. The \$31,000,000 mill at St. Francisville, La., is owned jointly by CZ and Time Inc. Initial output of double-coated magazine paper is consigned to Time, Chicago.

HOPSCOTCHING THE NORTH AMERICAN INDUSTRY

. . . Field Enterprises Inc., Chicago, has completed purchase of Manistique Pulp & Paper Co., Manistique, Mich., from Trenton (N.J.) Times Newspapers and the James Kerney Foundation; annual production: 30,000 tons—mostly newsprint. . . . New York & Pennsylvania Co. has installed two Colloidair flotation savealls at its Castenea mill, Lock Haven, Pa. . . . Merger of Powell River Co. Ltd. and MacMillan & Bloedel Ltd., British Columbia giants, became effective at year-end with approval of more than 90% of stockholders; surviving company is MacMillan, Bloedel & Powell River Ltd. . . . Fiscal 1960 capital outlays of West Virginia Pulp & Paper Co. will be between \$35,000,000 and \$40,000,000, up from \$22,000,000 in 1959. . . . Paper Container div. of Continental Can Co. is now known as the Bondware div. . . . Some 1,200 striking mill workers at Palatka, Fla., have reached agreement with Hudson Pulp & Paper Corp. on a new two-year contract. . . . Sonoco Products Co.'s research will be carried out in a new \$200,000 laboratory in Hartsville, S.C., to be ready by summer.

MORE ABOUT THE INDUSTRY . . . Crown Zellerbach Corp. at San Leandro, Calif., will install an eight-color Kitter rotary letterpress; the 72-in. unit with a top speed of 1,000 fpm is designed for process printing of bread and frozen food wraps. . . . New research and development center of Lily-Tulip Cup Corp. at Commack, L.I., N.Y., is set for completion in April or May; 150,000-sq. ft. building will concentrate all research and development functions. . . . Shareholders of KVP Co. and Sutherland Paper Co., both of Kalamazoo, Mich., have overwhelmingly approved merger of the two firms; new name: KVP Sutherland Paper Co. . . . Southwest Lumber Mills Inc., Phoenix, Ariz., has changed its name to Southwest Forest Industries Inc. "to describe more accurately the type of operations carried on by the company"; the firm recently announced plans for a \$40,000,000 pulp and paper mill in the Snowflake area of northern Arizona.



**This Cleveland Speed Reducer
gives smooth, silent operation in
paper-making plant**

Paper-making today is an exact science. It requires smooth, highly dependable power transmission to keep product quality at highest levels.

Here is a Cleveland Worm Gear Speed Reducer used on the Rice Barton differential system at Ecusta Paper Division of Olin Mathieson Chemical Corp., Pisgah Forest, North Carolina. According to Ecusta's plant engineers, "This Cleveland Speed Reducer gives us really smooth, silent operation."

In industrial plants all over the world, wherever rugged, compact and dependable speed reducers are needed, you'll find Clevelands handling the toughest assignments. Call your Cleveland Representative today, or write for Bulletin No. 145. Either way you'll get the complete story on how to handle your most demanding power transmission jobs.

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Worm Gear

Speed Reducers



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MONTHLY REPORT – WORLD NEWS

RUSSIA ORDERS TWO HIGH-SPEED NEWSPRINT UNITS . . . from Black-Clawson International Ltd., British subsidiary of Black-Clawson Co., U.S.A. Cost of the order is more than £4,000,000 (\$11,200,000). Units will be largest in U.S.S.R. and among largest in world. Trim width will be 284 in. (7.2m), and daily production 363 tons (330 metric).

RUSSIAN MILL ORDER TO SWEDEN . . . where Karlstads Mekaniska Werkstad will supply equipment for the second stage of a viscose cellulose mill. The plant is to have 200,000-ton annual capacity of pre-hydrolyzed sulfate cellulose to be used in production of rayon cord for automobile tires.

SCANDINAVIA FORESEES GREATER CELLULOSE DEMAND . . . in 1960 and beyond. 1959 deliveries of Swedish cellulose at home as well as abroad exceeded 2,500,000 tons, up 300,000 tons from 1958. Finnish pulp production capacity by the end of 1962 or early 1963 has been estimated at 1,320,000 tons (1,200,000 metric), of which 770,000 (700,000 metric) will be converted to paper and/or board. Aside from groundwood and semichemical, chemical pulp capacity will be increased 627,000 tons (570,000 metric).

BOWATER-REED PLAN COMPLETED . . . Formation of Bowater Reed New Zealand Ltd. has been announced in London. New firm is jointly owned by Bowater Paper Corp. Ltd. and Albert E. Reed Co. Ltd. and is a management company that will channel communications between both firms and Tasman Pulp & Paper Co. Ltd., at whose mill in Kawerau, N.Z., a second newsprint machine is to be installed. Bowater Reed will provide Tasman with operational and technical assistance, serve as consultant-engineer for the project.

YANKEE MACHINE FOR VENEZUELA . . . has been ordered from Finshyttans AB, Sweden, by Papelera Continental. Width will be 120 in., cylinder 9 ft. 10 in. Order includes pulp breakers, jords, pumps, etc. Delivery date is set for March.

NEW BOILER PLANT FOR FINLAND . . . where Kemi Oy at Karihaara will install a \$2,000,000 (Kr 10,000,000) unit. The plant—said to be the largest of its kind in the world—will be supplied by Götaverken, Gothenburg, Sweden. Closely allied in the project is the British subsidiary of Babcock & Wilcox, U.S.A. Of the Tomlinson type, the boiler will have hourly capacity of 600-700 tons.

IN SPAIN: SODA RECOVERY FROM BLACK LIQUOR . . . Using new Torras-Xucla process, Papelera Torras, Gerone, is recovering soda from black liquor on commercial scale. Process is said to avoid combustion drawbacks of the liquid form and to use less steam in evaporators.

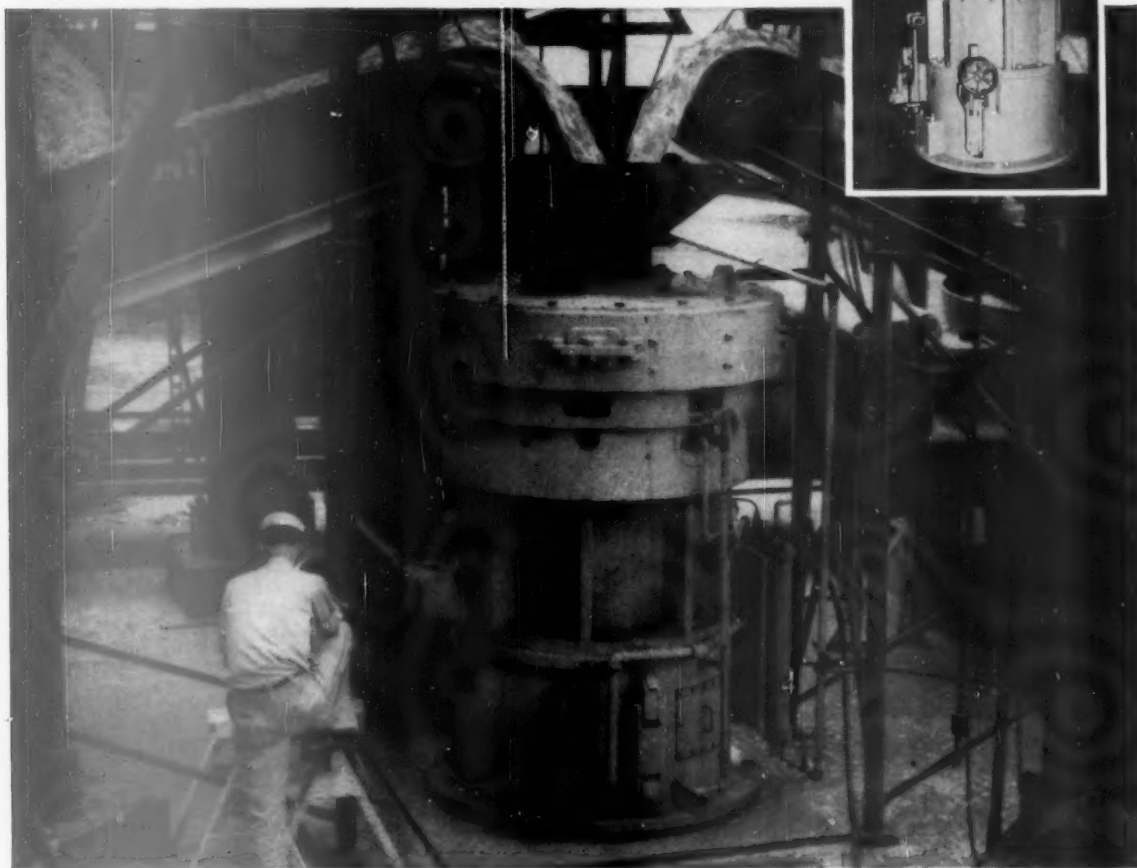
TOTAL OVERSEAS MARKET FOR CORRUGATED PAPER MACHINERY . . . is about \$20,000,000—or more than half the U.S. market, according to Mitchel Flaum, president of S & S Corrugated Machinery Co. Inc., Brooklyn, N.Y., U.S.A. S & S recently marked fifth anniversary of its entry into overseas trade, had sales of \$2,000,000.

U.S.A. HOST TO WORLD FORESTERS . . . Fifth World Forestry Conference will be held August 29-September 10 at Seattle, Wash. U.S. government is host, with cooperation of FAO and other agencies. Purpose: to advance practice and science of forestry by providing opportunity for an international exchange of ideas.

NEW PLANT PROPOSED FOR BELGIUM . . . where Bowater Europe SA will build a facility for production of corrugated containers at Ghent. (Plan is subject to approval of Belgian government.) Plant would have area of 250,000 sq. ft. and employ 600-800 people.

SWEDISH NOTES . . . No production cuts for chemical pulp are planned for this year. . . . Svenska Cellulosa AB reports fiscal 1959 net profit at \$4,370,000 (Kr. 22,500,000). . . . Latest figures show there is one self-service store for every 1,800 inhabitants.

For primary refining at low power... New Jones Vertiflex



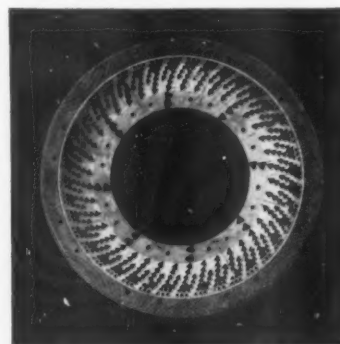
Vertiflex requires minimum floor space. Available in two disc sizes — 48" (shown here) and 34".

Typical application **Chip Shredding**

High quality pulp with extremely low waste and fibre damage, substantial savings in alkali used, increased yield, decreased screen rejects and lower recovery system loading — those are the results from this efficient Jones Vertiflex chip shredding installation. And energy required to process more than 2000 B.D. tons per day is just over 1/4 HP days per ton!

Full size chips are fed to the Vertiflex by belt conveyors from two chip silos. Resulting "shreds" are as long as the original chips, but greatly reduced in cross section.

Other applications on which the Jones Vertiflex will perform with outstanding efficiency include cold caustic chips, high yield pulps, bagasse, high density bleaching and denoodling. For full details write to E. D. Jones Corporation, Pittsfield, Mass.



Teeth in vertically mounted rotating disc inter-mesh with teeth in opposing stationary plate mounted in Vertiflex cover. Clearance is easily adjustable and disc life is high since there is never any metal-to-metal contact. Teeth shape and arrangements are varied to fit the application.



Represented in Canada by
The Alexander Fleck Ltd.
75 Spencer Street, Ottawa

Jones

PULP MILL EQUIPMENT AND
STOCK PREPARATION MACHINERY

Asbestos Insulation—Poland

JAROSZEWSKI, JAN, and PORADOWSKA, HENRYKA. *Przegląd Papierniczy* 15, no. 5: 150-4 (May, 1959). [Polish] Abstr. Bull. I.P.C. 30: 201.

Lab test sheets were prepared from three asbestos types: long-fibered Chinese asbestos, the L-1-60 Russian product, and African CB-10 amphibole asbestos. The effects of beating degree (71-91° Schopper-Riegler), amount of binder (3-5% potato starch adhesive), and thickness (0.16 to 0.56 mm.) on the properties of asbestos paper were studied. Increasing the amount of binder improved the mechanical strength of the sheets, but had little effect on the electrical puncture voltage. The mechanical and dielectrical properties were improved by increasing the thickness of the paper. Prolonged beating increased the puncture voltage slightly. Its effect on the mechanical properties varied with the type of fiber. Chinese and African asbestos gave papers of higher mechanical strength and better dielectrical properties than did the Russian asbestos; however, because of their poor drainage and high iron content, they were less suitable for the manufacture of insulation paper. Pilot-plant and dielectrical properties industrial scale experiments on the L-1-60 preparation confirmed the lab findings. The properties of the asbestos paper samples obtained in these experiments correspond to standard specifications.

Alkaline-Oxidative Degradation

A BRASSARD, HANS JOACHIM. *Das Papier* 13, No. 11/12: 245-52 (June, 1959). [German] Abstr. Bull. I.P.C. 30: 150.

Decreases in degree of polymerization and changes in the state of oxidation were studied for alkali-cellulose flocks (I) and linters-fiber suspension (II) in alkaline solutions as a function of sodium hydroxide concentration. Addition of hemicellulose considerably retarded the rate of depolymerization of I at low (18%) alkali concentrations but had only a slight effect at high (40%) alkali concentrations. By contrast, hemicellulose additions had no appreciable effect on the alkaline aging of II in air up to alkali concentrations of 30%; at higher concentrations appreciable degree of polymerization

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losses occurred. Additions of hydrogen peroxide caused marked decreases in degree of polymerization even in dilute alkali solutions. Thus, the degree of polymerization of II in 5% sodium hydroxide decreased from an initial value of 600 to ca. 200 (in 40% caustic) when peroxide was added. The active oxidizing agent that is formed when air is introduced into an aqueous sodium hydroxide solution is suggested to be a peroxide compound NaO.OH. This reaction is evidenced by the oxidation of ferrous to ferric ions and by the transformation of the leuco base of indigo into indigo blue. The formation of NaO.OH varied widely and somewhat irregularly with alkali concentration. It was most pronounced at ca. 10% alkali and practically absent at 30-35%. Additions of sodium sulfide in the presence of air greatly accelerated the rate of depolymerization of I in alkaline solutions. This effect was less pronounced in an atmosphere of nitrogen. It is caused apparently by the formation of sodium hydrogen sulfide and sodium sulfide in the initial stages of xanthation and terminates with the complete conversion of the bisulfide to the sulfide. The cellulose-degrading action of sodium sulfide was intermediate between the effects of sodium arsenite (least effective) and stannous chloride (most effective). The effectiveness of these three compounds seemed to be correlated with their redox potentials. In general, the results obtained with II were more satisfactory than those which were obtained with I.

Wallboard Heat Tempering

BRAUNS, O., and ÖSTERBERG, L. *Svensk Papperstidn.* 62, no. 10: 351-4 (May 31, 1959). [Swed.] Abstr. Bull. I.P.C. 30: 186.

Differences in hardboard strength caused by different degrees of preparatory beating or by different pressing cycles seem to remain after heat treatment, whereas differences in water

absorption and thickness swelling are largely eliminated on heat treatment for 2 hr. or longer at 170°C. Whether one, two, or three sheets are placed closely together in the tempering chamber seems to be of minor importance for the heat-treating time ordinarily used in wallboard manufacture.

Curling Tendency—Germany

BRECHT, WALTER, RADERER, PAUL, and WEITZEL, WOLFGANG. *Das Papier* 13, no. 11/12: 237-44 (June, 1959). [Ger.] Abstr. Bull. I.P.C. 30: 194.

The geometry of curling (arching and rolling) of isotropic and anisotropic sheets is outlined, and the effects of the removal or addition of moisture to one or the other side of the sheet are discussed. Using simple lab. equipment (variable-relative humidity chambers) it is shown how the relative humidity difference between the two sides can affect the measurable height of the curl or arching of the sheet. Samples exposed to the same relative humidity on both sides failed to curl, regardless of whether the relative humidity was low or high. As soon as a relative humidity gradient developed, curling took place and, with increasing relative humidity difference (e.g., 95 vs. 65% relative humidity at 20°C.), progressed into complete "rolling." Curling effects depend on the type of stock, the degree of beating, the thickness of the sheet, and other factors. Thus, a paper sheet made from slow (well-beaten) stock showed a marked curling tendency, whereas a sheet of equal basis weight made from a fast stock curled but slightly under the same relative humidity gradient. Papers of low basis weight generally showed greater curling tendencies than heavier sheets of the same stock under otherwise equal experimental conditions. Curling was also affected by the rate at which currents of warm air were passed over the top side of a sheet exposed to 65% relative humidity on the upper and 95% relative humidity on the bottom side. The height of the curl was a function of time when measured over a span of from 30 sec. to 60 min. Additional experiments were made on a small paper machine in which the wire side was dried more rapidly than the upper side, thus causing curling, because of differences in relative humidity.

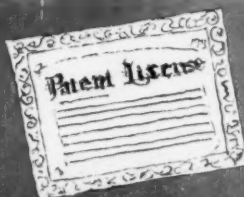
Which
of
these
5
products
and
services
can
you
use...
from

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FOOD MACHINERY AND
CHEMICAL CORPORATION

Becco Chemical Division
STATION B, BUFFALO, NEW YORK



**"Enclosing \$1.00 —
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Well, perhaps there's a little more to your gaining use of Becco patents than just mailing your dollar in, but not much more. And certainly, no more money. The \$1.00 really does cover it.

Becco has lots of patents, granted as a result of innovations in the use of Hydrogen Peroxide and other Peroxygen chemicals developed in Becco's Research Laboratories. But they don't do us a whole lot of good locked tightly in our safe. So, we long ago adopted the following policy:

If one of our patents can help you, we'll be glad to license the rights to you **perpetually**, for just one dollar. You get a nice certificate, incidentally, to cover the legalities, but more important — you also get free our complete engineering help in setting up your process, handling the material, maintenance, etc., etc.

What do we get? You as a customer — we hope — but there's no obligation on your part. Just seems to work out that way, though — when we know enough about a particular peroxygen to hold a patent on its use, chances are we've also learned enough to produce it purer than anyone else. You benefit from this; we do, too.

Use the coupon below to ask for a Sales Engineer — or our list of patents — that may help you solve an important problem.

Problems
in handling
Hydrogen
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Becco's Four-Fold Engineering Service Program — offered free — includes:

1. Comprehensive survey of your facilities.
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Can you use this free Becco help, based on more years of experience with bulk handling of H_2O_2 than any other manufacturer? Use the coupon to let us know.

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We got 'em—
You can have 'em!
They're FREE!

Years of experience in paper and pulp processing have produced a library of technical information which is available in individual bulletins, free on request. Use the coupon below to let us know which you'd like to receive.

- No. 31 — Groundwood Bleaching Variables — A Statistical Approach.
- No. 32 — H_2O_2 Bleaching of Chemicals and Mechanical Pulps.
- No. 47 — Peroxide Bleaching of Pulps.
- No. 48 — High-Density Pulp Bleaching.
- No. 64 — Development Studies on Last-Stage H_2O_2 Bleaching of Alkaline Pulps.
- No. 65 — Peroxide Bleaching of Southern Pulps.
- No. 66 — Becco Laboratory Procedures for Pulp Bleaching, 1955 Ed.
- No. 91 — Peroxide Bleaching of Chemi-Mechanical Hardwood Pulps.
- No. 92 — Peroxide Bleaching of Chemical Pulps.

New Cold Caustic Bleach Process

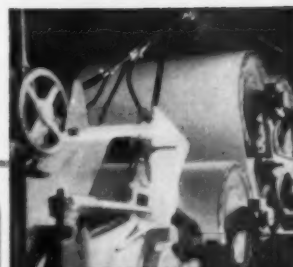
Looking for a way to use greater amounts of low-cost, more plentiful pulp—without capital investment for bleach equipment? Then let a Becco Sales Engineer show you our new technique* which allows you to bleach in the same equipment regularly used for the manufacture of cold caustic pulp.

In this new process, peroxide bleach liquor is added at the Bauer Refiner, and bleaching occurs during the refining operation. Bleach response depends on refiner densities.

Up to 20 points brightness increase has been obtained in commercial operations to date, and with no additional steam costs, no holding time, and no excessive chemical costs.

Becco can assist you immediately in setting up a production run and evaluating results. First step: use the coupon to let us know you're interested.

*—Patent Pending



How BRIGHT Is BRIGHT?

That's a hard question to answer. It depends on how the pulp is treated.

Trouble is, paper can show an 86 level at the layboy, but by the time the paper is delivered, this has dropped to 82 or lower. With conventional bleaching methods, that is.

Many chemical pulp producers have found the answer to this problem in Becco's Dryer Steep Bleaching Process (patented, but licensed perpetually for one buck). Applied by means of spray pipes across the pulp sheet ahead of the dryers, Becco Hydrogen Peroxide increases brightness permanence and bleaches in transit. Often, in fact, an 86 layboy level improves to 88 by delivery time.

This is just one example. Becco has a vast amount of technical knowledge compiled from 31 years of experience with all types of pulp. If you'd like help with your pulp, free of any obligation, let us know with the coupon below.

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BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. PP-G

Gentlemen:

Please send me a copy of each of the following bulletins:

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BECCO



BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. PP-H

Gentlemen:

Please have a Sales Engineer give me more information on Becco's Cold Caustic Bleach Process.

NAME _____

FIRM _____

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BECCO



BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. PP-C

Gentlemen:

We would like help with our pulp. Please have a Becco Sales Engineer call.

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FIRM _____

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Bingham
"COMBER"

**"IT COMBS
AND MIXES"**



Bingham "Combers" are available for production ranging from 50 tons to 500 tons per 24 hours.

The Bingham "Comber" is designed to comb individual fibres from fibre bundles without cutting, bruising, or hydrating the fibre. In addition, this special equipment thoroughly mixes the pulp fibres with any added chemical. This combined action establishes a definite place for the "Comber" in the chemical treatment of pulp fibre for production of high quality pulp.

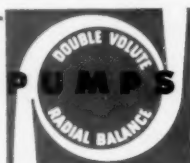
The Bingham "Comber" has other important applications such as separating fibres from knots in blow-pit

stock and combing out the fibre bundles which persist through the processing usually applied to the de-fiber-ing of lap or baled pulp and old paper stock.

The Bingham "Comber", in a stock line, does not increase the head loss in the system. This special equipment performs its combing and mixing action, and, at the same time, creates sufficient head to compensate for all head losses. Due to its high operating efficiency, the "Comber" requires but a minimum of power.

Your nearest Bingham office will be glad to give you full details on request.

Bingham
SINCE 1921



BINGHAM PUMP COMPANY

General Offices: 2800 N.W. Front Avenue, Portland 10, Oregon
Factories: Portland, Ore. • Vancouver, B. C., Canada

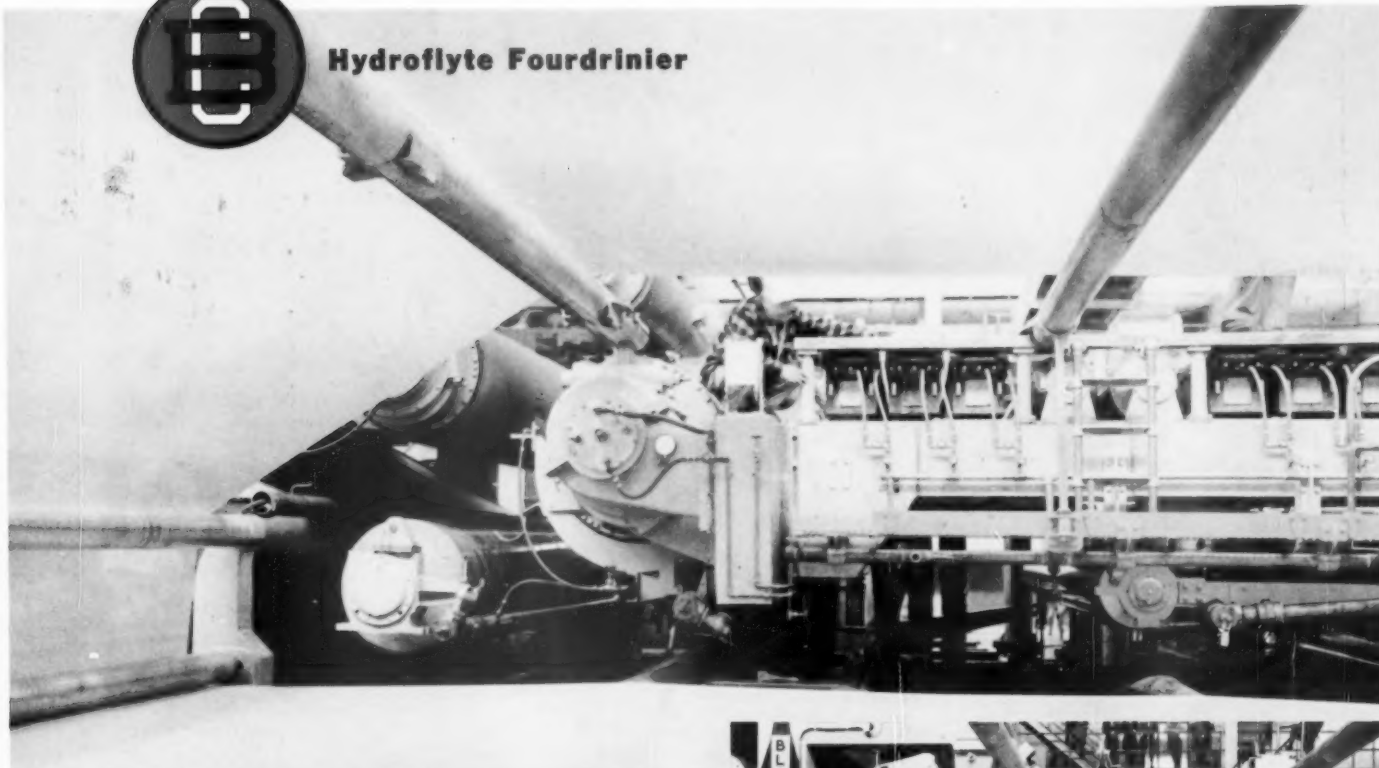
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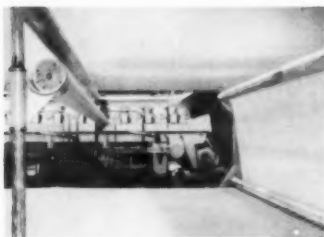
**Why Dismantle and Move 125 Tons
of Precision Fourdrinier**
when it's easier to move a few hundred pounds of wire?



Hydroflyte Fourdrinier

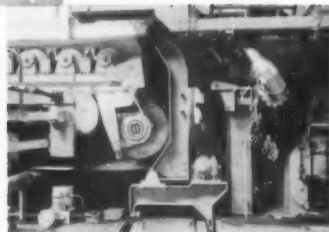
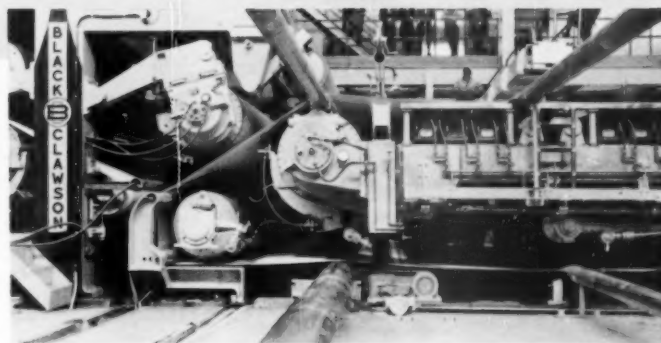


Tensioned wire pre-strung on special rig
in aisle alongside Hydroflyte Fourdrinier



Rolls retracted

Wire is quickly pulled on cantilevered Fourdrinier by winch and cable.



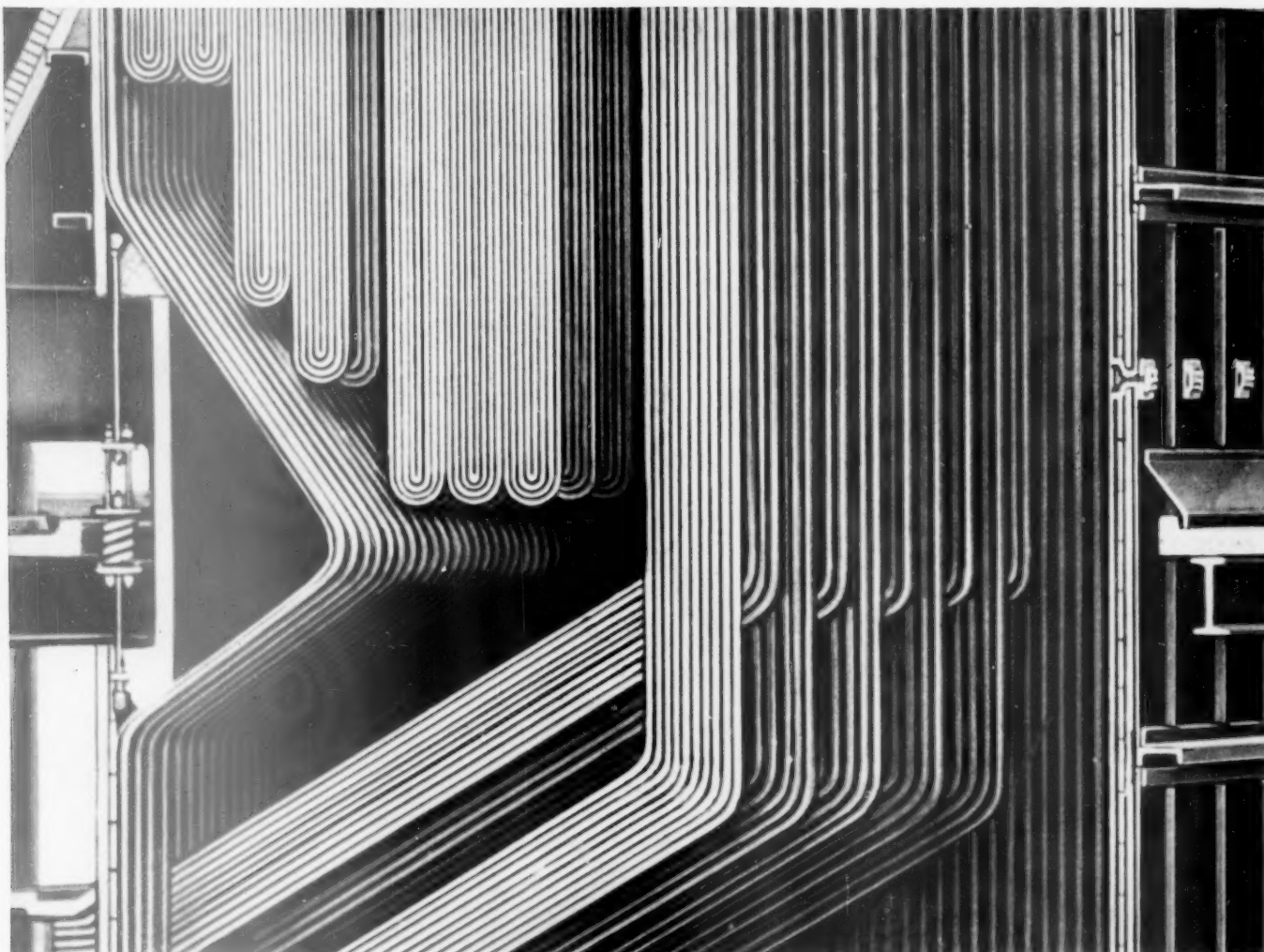
Wire in place

Doesn't it make sense to change the wire as quickly and safely as possible? With the Black-Clawson Hydroflyte Permanent Cantilever Fourdrinier you eliminate costly downtime. Suction, air, water, power, saveall, shake and drive connections **are not disturbed in any way**. Positive alignment and precision adjustments are maintained always. Another reason why papermakers who demand the best come to

The Black-Clawson Company
Paper Machine Division, Watertown, N. Y.

**Another Advanced
Engineering Design**

BLACK-CLAWSON



In the new C-E recovery units...

Tangent tube "panels" shed slag, add to ease of operation

Each panel in the superheater and furnace screen of the new C-E Recovery Units is a *solid wall* of tubes tangent to each other, with generous spacing between panels. The continuous panel surfaces shed much of the slag as it forms, the remainder being easily dislodged by soot blowers.

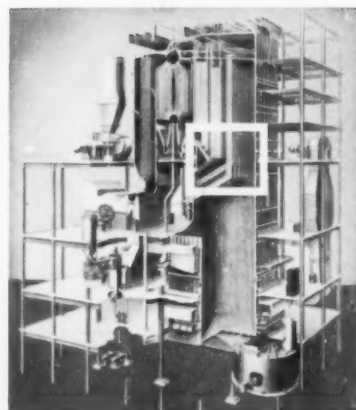
This "self-cleaning" C-E design permits smooth, unimpeded gas flow and minimizes slag build-up. Heat absorption is uniform across the width of the furnace. Soot blower effectiveness is increased and surfaces remain cleaner — resulting in important operating economies.

COMBUSTION ENGINEERING

Combustion Engineering Building
200 Madison Avenue, New York 16, N. Y.
Canada: Combustion Engineering-Superheater Ltd.

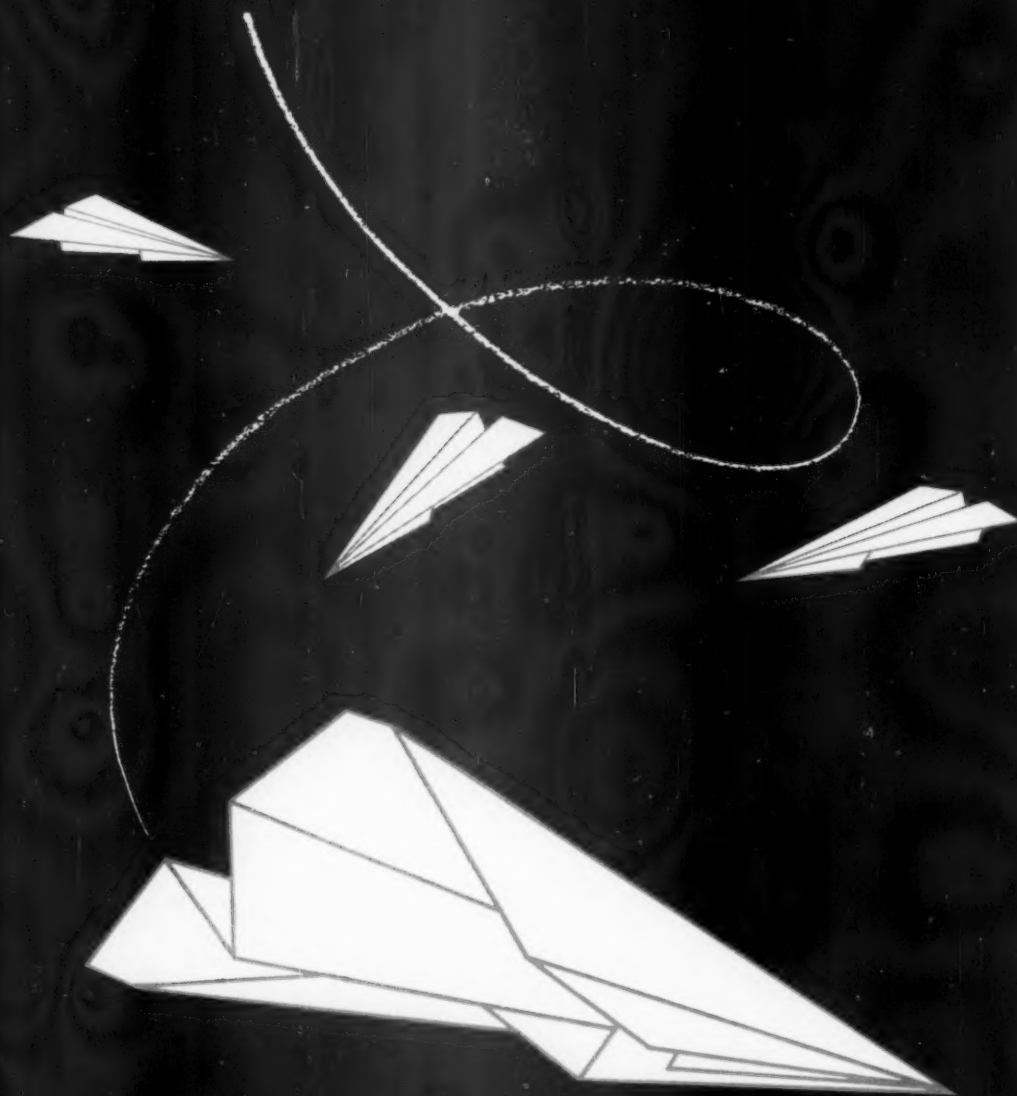


C-252



Superheater of the C-E Recovery Unit, as shown here, is located directly over the furnace so that slag falls to the hearth. A section of illustration has been enlarged to show widely-spaced panel construction of superheater and furnace screen.

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE



**AIRMAIL PAPERS MADE WITH
PUT OTHERS IN THE SHADE!**

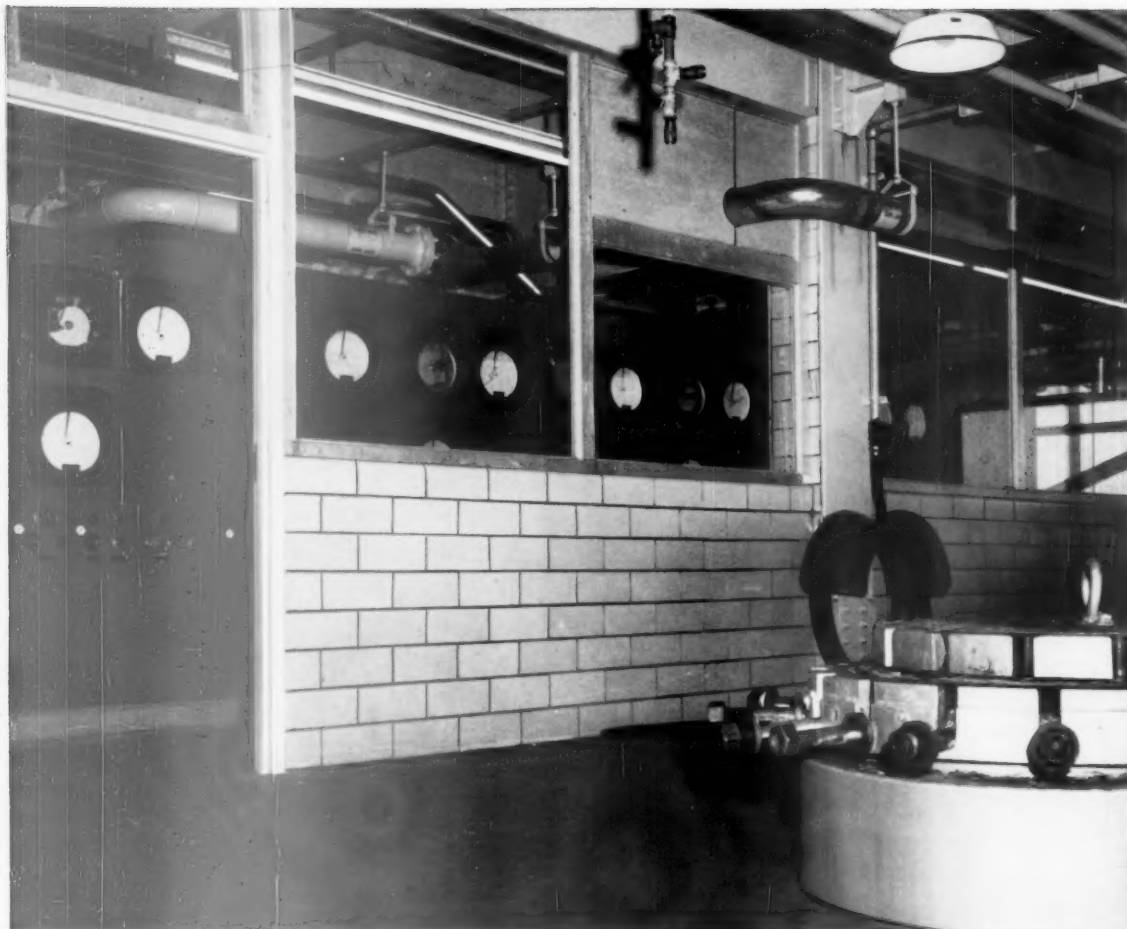


O-110
Titanium Dioxide

UNITANE O-110 gives thin papers greater opacity . . . whitens as it brightens. Ask your Cyanamid Pigments representative about UNITANE O-110.



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Digester control panel at Bowaters Carolina Corp., Catawba, S. C., containing 5 Foxboro Digester Control Systems, together with liquor-fill and

chip-fill systems. Instruments shown are Foxboro cam pressure controllers, digester top-and-bottom temperature recorders, and relief flow controllers.

BOWATERS CAROLINA CORP. REPORTS:

"Uniform pulp - cook after cook with Foxboro Automatic Digester Control"

Completely automatic from fill to blow — that's the operation of the five, 4,300 cubic-foot kraft digesters at Bowaters Carolina's new mill at Catawba, S. C.

Each of Bowaters Carolina's five digesters has its own Foxboro packaged control system. To start a cooking cycle, the operator simply turns a single knob — then Foxboro takes over. Results: perfectly controlled digester circulation with virtually no liquor pull-over; uniform

permanganate; practically no rejects — all resulting in high yield and excellent uniformity.

Your digester control story can be the same, too. Get full details on this revolutionary kraft digester control system from your nearby Foxboro Field Engineer. Or write direct for engineering data sheet 260-50 which has full information. The Foxboro Company, 992 Neponset Avenue, Foxboro, Massachusetts.

FOXBORO
REG. U. S. PAT. OFF.

AUTOMATIC DIGESTER CONTROL



Pipe fails after 9 months—hose goes 6 years

They hardly expected a materials handling problem at this Ohio boxmaking plant. After all, there's nothing very abrasive-looking about paper slurry. But the fact remained, it was eating through heavy steel pipe in a scant 9 months or less.

Here was a problem, they felt, for the G.T.M.—Goodyear Technical Man. And it was a job, as he saw it, for Diversipipe—the rugged, flexible rubber pipe designed to stand up to the roughest sort of abrasive use.

Result: the G.T.M.'s Diversipipe has now been on the job for 6 years—more than 8 times the longest pipe-life. And it's still in fine shape.

If you're losing money down the pipe at your plant, call for the G.T.M. He can recommend from hundreds of types of hose—each designed to do a specific job better—and cheaper. Contact him through your Goodyear Distributor—or by writing:

Goodyear, Industrial Products Division
Akron 16, Ohio

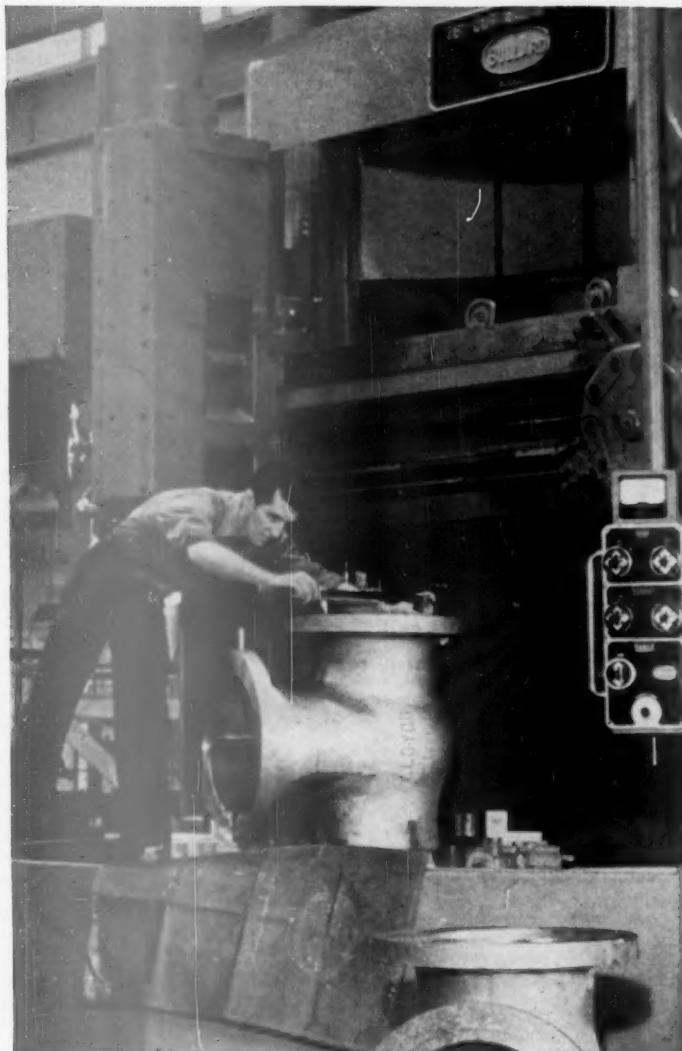
. . .

IT'S SMART TO DO BUSINESS with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."

HOSE FOR ALL INDUSTRY BY

GOOD YEAR
THE GREATEST NAME IN RUBBER

Diversipipe—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio



14" 300 lb. gate valve slated for a large petro-chemical plant, is being worked on one of Aloyco's battery of new Bullards.

Advanced machines... tools...test facilities expand Aloyco Valves' range of service

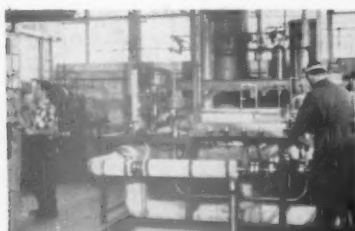
Constant change and improved techniques in modern fluid handling, pose a real challenge for valve manufacturers.

To meet these demands, Aloyco is constantly adding new facilities, some of which are pictured here.

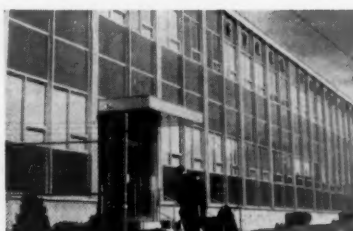
For example, Aloyco Stainless Steel Valves are now available in sizes up to 24", pressures up to 2,500 lbs. at 650°F.

While these new facilities have improved and expanded the quality and usefulness of our entire line, they are particularly important, for example, in the manufacture of valves for the nuclear and missile fields.

For advanced knowledge and ideas plus the equipment to carry them out—take your next valve problem to the specialists: Alloy Steel Products Company, 1316 West Elizabeth Avenue, Linden, New Jersey. 9 8



One of finest hot test loops in the nation checks out valves at up to 2500 psi, 650°F. Hot tests can spot trouble that would otherwise be revealed only after months of line service.



New multimillion dollar Aloyco plant combines new production tools, test facilities, sales, administration, research and development offices and labs into single integrated unit.



Boroscope examination (in pressurized clean room) of specially made nuclear valves follows the application of dye penetrant.

ALLOY STEEL PRODUCTS COMPANY LINDEN, NEW JERSEY

Boston • New York • Wilmington • Atlanta • Birmingham • Baton Rouge • Buffalo
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UNBLEACHED
BLEACHED
ELECTRICAL PULPS
OTHER SPECIALTIES

**YOU CAN GET ALL OF THESE
 SOFTWOOD KRAFT PULPS
 FROM DRYDEN**



We are sure you know about the high quality of Dryden Bleached Sulphate Pulp. But did you know that you can also make Dryden your single source of supply for many other kraft pulps?

Dryden Unbleached—widely recognized for its high tensile strength—for everything from twisting tissues to boxboards.

Dryden Electrical Pulps—tailor-made for cable wrap, transformer board and capacitor tissue.

Dryden's Other Specialties—formulated to meet many unusual requirements. (We produce pulps for anti-tarnish papers, for example.)

We would be glad to make up a single boxcar shipment of several of our pulps for you to try in your own operations.

DRYDEN PAPER COMPANY, LIMITED

DRYDEN, ONTARIO, CANADA

SOLD BY: Anglo Paper Products, Ltd.

2055 Peel Street, Montreal 2, Quebec

SALES REPRESENTATIVES IN THE UNITED STATES:

Northeastern Paper Sales, Inc.

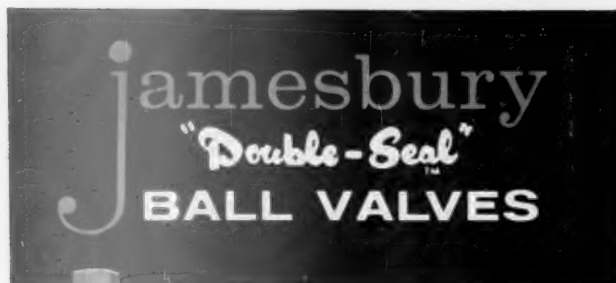
400 Madison Avenue, New York 17, N. Y.

20 North Wacker Drive, Chicago 6, Ill.

You know we have outstanding valves

— but remember —

No Other Valve Can Compare With —



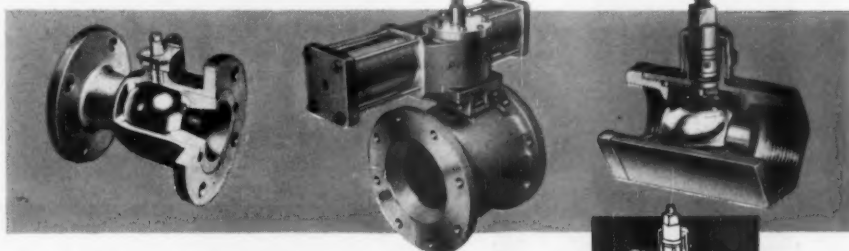
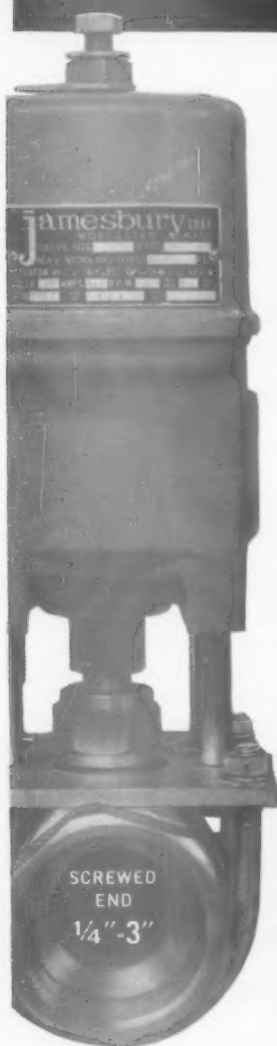
In All-Around Pulp and Paper Mill PERFORMANCE and VERSATILITY

The Jamesbury valve is proving itself in the toughest service in the paper mill . . . Digester Blow installations. The same dependable efficiency, rugged construction and outstanding performance is built into every Jamesbury valve and . . .

There's a Jamesbury ball valve to fit wherever mill applications call for a quick ON-OFF valve, screwed end or flanged type, manually or remotely operated, in the 1/4\" through 10\"** size range. Jamesbury's range of valve materials is equally impressive: 303 and 316 Stainless Steel, Alloy 20, Carbon Steel, Bronze, Ductile Iron, Aluminum and PVC. Interchangeable seats and seals are available in "Teflon", Nylon, Buna-N, Neoprene, Hypalon and natural rubbers.

**Consult factory on availability of 12\"

*Teflon—Dupont registered trademark



Pneumatic, Hydraulic and Electric Motor Operators to fit Remote Control requirements.

Send for Jamesbury's Pulp and Paper literature.

JAMESBURY CORP., 46 NEW STREET, WORCESTER, MASS.
Distributors in Principal Cities

SCAPA

GROUP "C"

**SYNTHO-
ASBESTOS**

Dryer Felts

incorporate our exclusive

* "3-DECKER" STRUCTURE

- Dacron-Nylon Working Face
- Syn-Reinforced Asbestos Center
- Syn-Reinforced Cotton Back

(Approx. 25% Synthetic Content)

They insure excellent drying, combined with unusually high resistance to thermal, chemical and mechanical degradation.

Types 3175-C (SRA) and 3480-C (SRA) supplied in all widths either open-ended or with Clipper Seam.

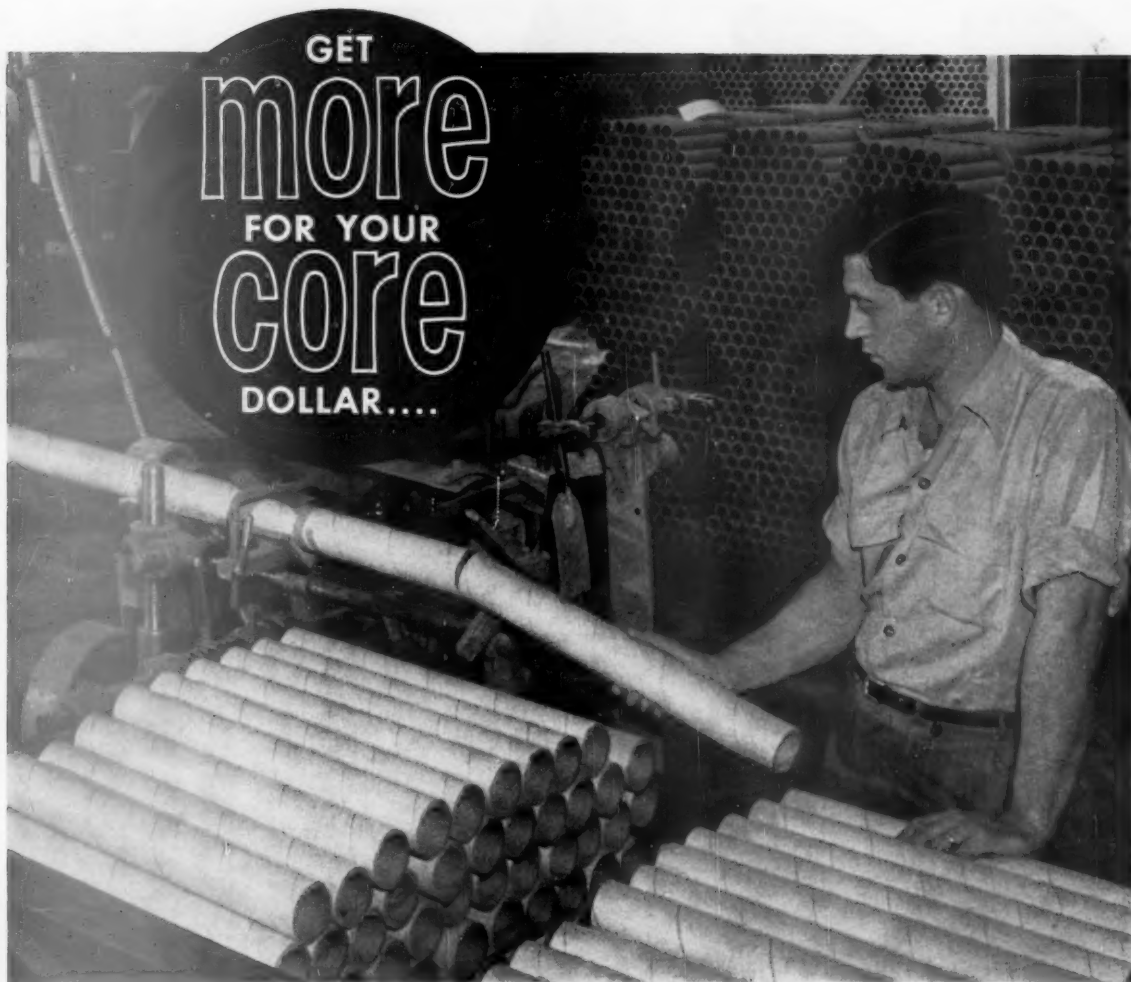
Type 3980-C (SRA) supplied endless with hand-spliced seam.

*World Patents Granted and Pending

Morey Paper Mill Supply Company
309 SOUTH STREET, FITCHBURG, MASSACHUSETTS

Sole U. S. Agents for

SCAPA DRYERS, INC.
WAYCROSS, GEORGIA



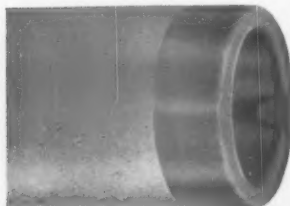
Sonoco controls quality from start to finish!

All Sonoco cores are products of a completely integrated manufacturing operation. Every production step is subject to rigid quality control. This assures economical cores of uniform quality—for dependable, trouble-free performance.

Regardless of your need in cores—returnable or non-returnable, with or without metal ends—Sonoco offers you a complete range of sizes with

tolerances and crush strength to meet your most demanding requirements.

Let Sonoco's 60 years of experience, coupled with a program of unending research, help you to get more for your core dollar. Core specialists are located at Sonoco plants from coast to coast to personally assist you with your problems. Call or write today!



SONOCO



Paper Mill Cores

SONOCO PRODUCTS COMPANY

359

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**Guarantees efficient,
time saving performance
for steel plate structures**

CB&I offers operators the advantage of a single *industry-experienced* source for construction of steel process equipment and storage vessels—from design, through fabrication and erection.

These highly coordinated services include the most extensive metallurgical inspection and control facilities available anywhere . . . equipment and techniques for stress relieving and X-ray in the shop or field — as well as the most modern automatic welding practices.

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GREENVILLE, PA. and at NEW CASTLE, DELAWARE.
In Canada: HORTON STEEL WORKS LTD., TORONTO, ONTARIO



CB&I Designs and Engineers

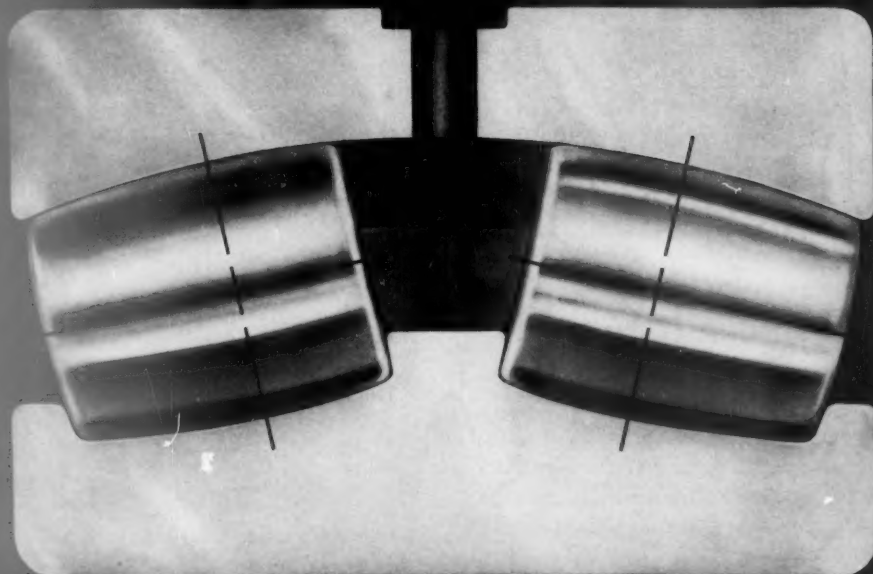


CB&I Fabricates



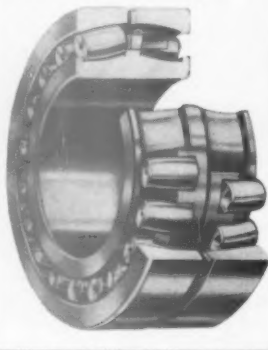
CB&I Erects

- 1 Stainless steel Hortonclad® sextuple effect evaporator for foaming black sulfate liquor.
- 2 13-ft. diameter by 63-ft. digester leaves CB&I stress relieving furnace.
- 3 CB&I-patented girth welder insures strong, uniform welds.
- 4 Seven 17-ft. diameter sulfite digesters and four 17-ft. accumulators were erected, welded, stress relieved and X-rayed by CB&I at this site.



TORRINGTON
Spherical Roller Bearings Offer:

- inherent self-alignment
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- integral center guide flange for stability
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- maximum radial and thrust capacity
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- long, dependable service life



Send for new Torrington
Spherical Roller Bearing Catalog #258.

Shaped for Stability!

The asymmetrical shape of each roller in Torrington Spherical Roller Bearings contributes directly to operating stability and long service life.

The maximum roller diameter is not at the center of the roller. Located towards the center flange, it insures geometric positioning of the roller for positive guidance with free rolling action.

The roller shape also approaches that of a tapered roller. Lines extended from the roller-to-race contact zone converge at the roller and bearing axes. This approach to true conical rolling action further assures stability.

These are two more reasons why Torrington Spherical Roller Bearings operate cooler, quieter and with greater stability. For the ultimate in bearing performance and service life, always specify *Torrington* Spherical Roller Bearings. **The Torrington Company, South Bend 21, Ind.—and Torrington, Conn.**

TORRINGTON BEARINGS

Every Basic Type of Anti-friction Bearing

SPHERICAL ROLLER • TAPERED ROLLER • CYLINDRICAL ROLLER • NEEDLE • BALL • NEEDLE ROLLERS • THRUST



ENGINEERED...FOR A HOT SPOT! **WOODBERRY 403**

Synthetically Reinforced Full-Faced Asbestos Dryer Felt

WOODBERRY 403 dryer felt is designed specifically to yield optimum drying efficiency in the hottest positions. It's a rugged workhorse bred to resist punishment on three distinct levels - extreme temperature, high speed and chemical degradation - all at once! This three-fold toughness and the unusual drying characteristics of WOODBERRY 403 have been achieved through a perfect balancing of the elements in its construction. An *Asbestos* face gives maximum protection from excessive heat. *Synthetic reinforcement* in the asbestos face and in the back strengthens the felt through and through - adds longer life; provides resistance to abrasion and chemical deterioration. The unique *open construction* of the back permits moisture to be driven off quickly and promotes unprecedented drying efficiency for this type of felt. WOODBERRY 403 is prestretched, preshrunk and fully heat stabilized.

MOUNT VERNON DRYER FELT FAMILY - WOODBERRY 403 is just one of Mount Vernon's full "Family" of scientifically engineered dryer felts. There's an individual felt for virtually every paper machine position and every paper-making need.

UNIFORMITY
Makes The Big
Difference
In Industrial
Fabrics



Mount Vernon Mills, inc.

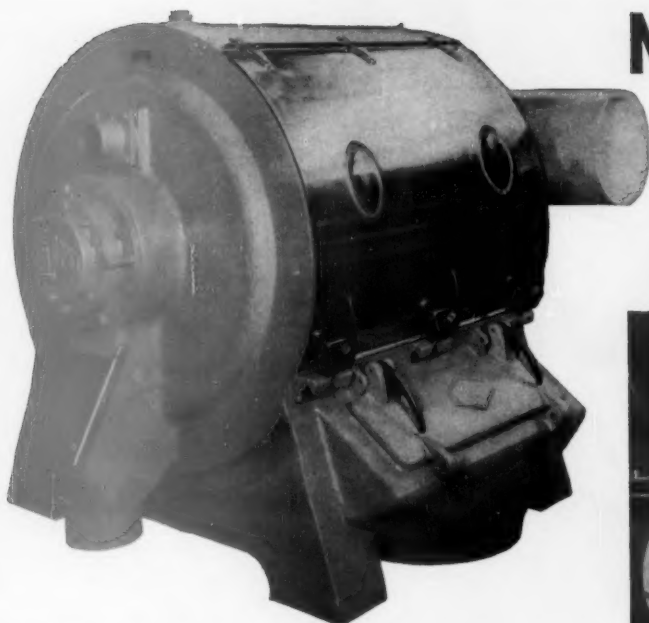
A LEADER IN INDUSTRIAL TEXTILES

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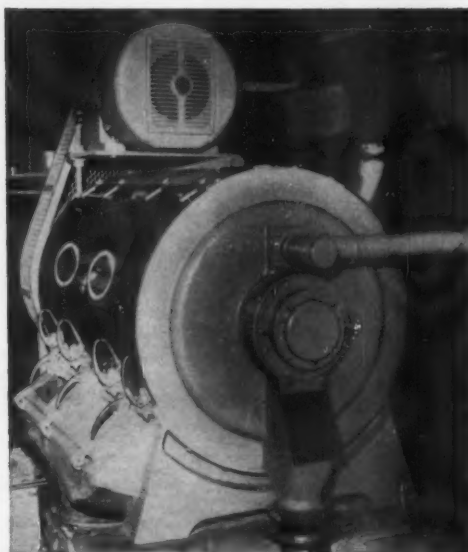
Main Office: 40 Worth Street, New York, N. Y.

Another Mount Vernon Dryer Felt Success Story...

A manufacturer of heavy Kraft needed a sturdy, rugged dryer felt that would work, and keep working, in a really tough, hot position. It was the third bottom position, where extremely high temperature, plus high speed, formed a brutal combination that cut the life of ordinary felts to only 12 weeks! Mount Vernon engineers recommended WOODBERRY 403, a synthetically reinforced, full-faced asbestos dryer felt designed especially to resist severe abuse under unusually hot, hard-wearing conditions. Result... 21 consecutive weeks of effective operation - WOODBERRY 403 lasted 75% longer and cost considerably less per ton of paper produced.



NEW ADVANCES IN LOW COST QUALITY PULP SCREENING



IMPCO CENTRIFUGAL SCREENS FOR:

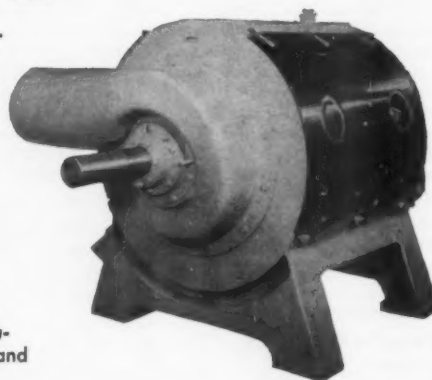
Washed Stock Screening
Hot Stock Screening
Sealed Black Liquor Knotting
Fibre Length Classification
Paper Stock Cleaning

The new Impco Centrifugal Pulp Screen is the latest example of the progress made toward the ultimate in low cost quality screening. This screen incorporates many improved principles and features such as:

- a stock inlet allowing direct top, bottom, front or rear infeeding which simplifies installation piping;
- a tangential inlet which changes flow direction from linear to rotating, yet retains velocity head;
- a special stator which provides uniform internal distribution of pulp;
- a patented high-efficiency rotor which increases capacity without additional horsepower;*
- a bottom accepted stock outlet permitting all sub-floor piping;
- a full length quick-opening door for routine accepted stock sampling;
- an accessible rejects outlet for tailings inspection or sampling.

These features are resulting in peak capacities and high discharge consistencies at lowest horsepower. Reject richness is readily controlled. Engineered simplicity is characteristic of the entire line of Impco Centrifugal Screens which require very little operating attention and mechanical maintenance.

* U. S. Patent No. 2,845,848.



IMPROVED MACHINERY INC.
NASHUA, NEW HAMPSHIRE



In Canada, Sherbrooke Machineries Ltd., Sherbrooke, Quebec

**precision
engineered
kilns**

Traylor-made



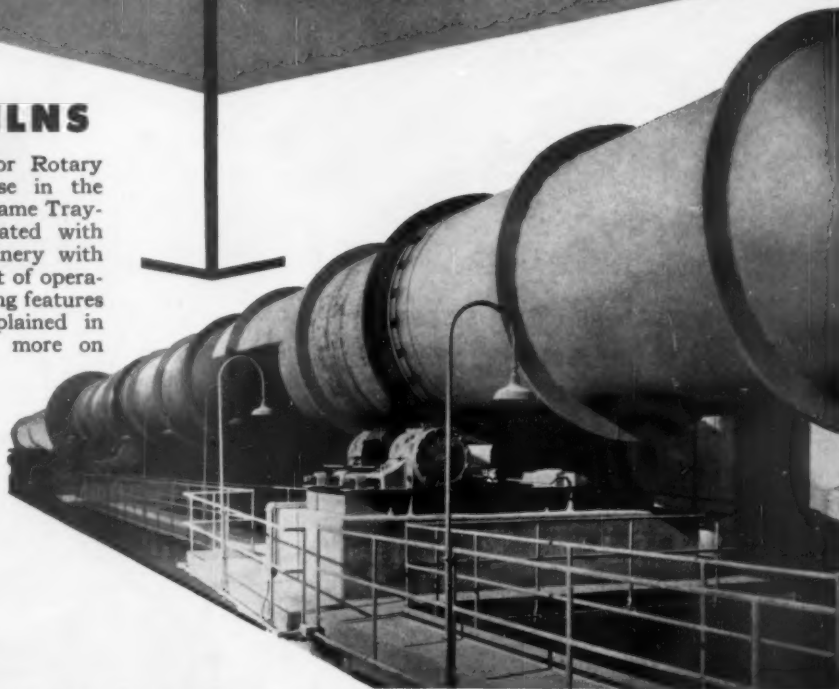
Auxiliary drive on a 7'-0" dia.
x 250'-0" Rotary Kiln in a
paper mill.



Plant view of a 9'-6" dia. x
250'-0" Rotary Kiln in a
portland cement plant.

ROTARY KILNS

Many hundreds of Traylor Rotary Kilns are in constant use in the processing industry. The name Traylor has long been associated with rugged, dependable machinery with high efficiency and low cost of operation. The many outstanding features of Traylor Kilns are explained in Bulletin No. 1115. For more on Traylor, write today!



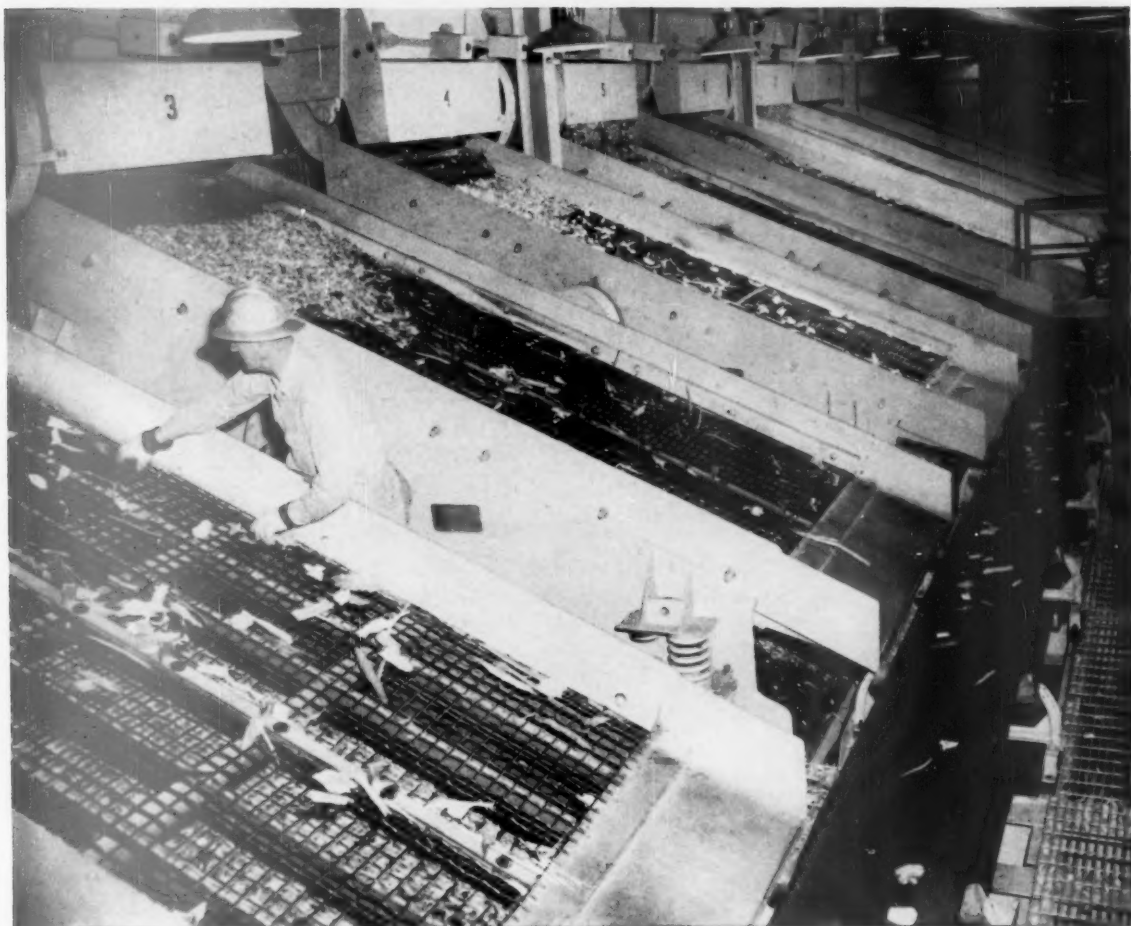
TRAYLOR ENGINEERING & MANUFACTURING COMPANY

1516 MILL ST., ALLENTOWN, PA.

Sales Offices: New York — Chicago — San Francisco

Canadian Mfr.: Canadian Vickers, Ltd., Montreal, P. Q.

"Great shakes" for screening jobs



LINK-BELT vibrating screens bring speed and economy to sizing, dewatering of chips and bark

WHETHER it's sorting chips or salvaging small wood particles from large volumes of water, Link-Belt has a vibrating screen to do the job . . . and save you money doing it.

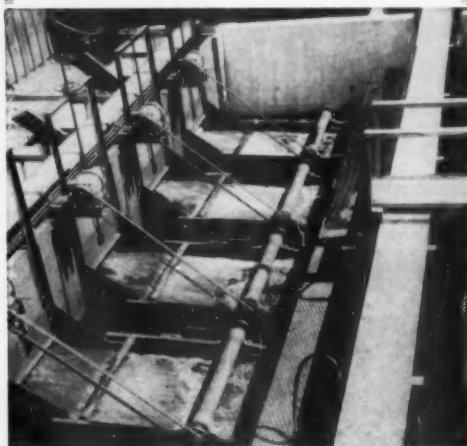
Special deck design of Link-Belt liquid screens permits use of a very fine cloth. This—plus high-frequency, small-amplitude vibration—assures maximum solids retention, maximum liquid passage. Link-Belt dry screens perform with a positive, uniform circular motion that provides equal sizing opportunity for every particle . . . fast, sure stratification.

For full details, send for Book 2777. Address Link-Belt Company, Dept. P.P., Prudential Plaza, Chicago 1, Ill.



LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World.

FAST, ACCURATE SORTING of wood chips is achieved at this mill by a bank of nine Link-Belt CA (Concentric Action) vibrating screens. High-intensity circular motion assures sharp separation of sawdust and oversizes. Below, five Link-Belt liquid vibrating screens separate bark from hydraulic barker wash water. Each screen handles about 400 gallons per minute.



**POWER
SPEED
COMPACTNESS**

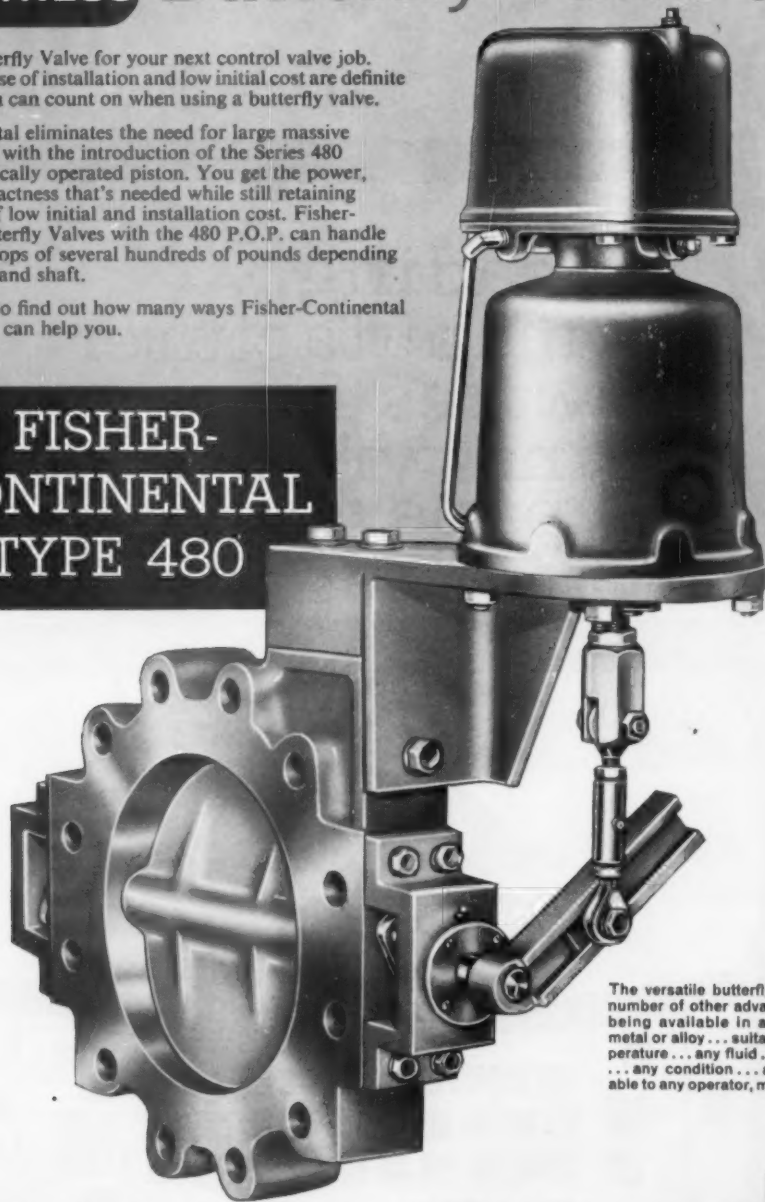
Fisher-Continental Type 480 will give you all 3 on your next Butterfly Valve Job

Consider a Butterfly Valve for your next control valve job. Compactness, ease of installation and low initial cost are definite plus features you can count on when using a butterfly valve.

Fisher-Continental eliminates the need for large massive power actuators with the introduction of the Series 480 P.O.P. pneumatically operated piston. You get the power, speed and compactness that's needed while still retaining the advantage of low initial and installation cost. Fisher-Continental Butterfly Valves with the 480 P.O.P. can handle high pressure drops of several hundreds of pounds depending on size of body and shaft.

It will pay you to find out how many ways Fisher-Continental Butterfly Valves can help you.

**FISHER-
CONTINENTAL
TYPE 480**



The versatile butterfly valve offers a number of other advantages such as being available in any size... any metal or alloy... suitable for any temperature... any fluid... any pressure... any condition... and it is adaptable to any operator, manual or power.

IF IT FLOWS THROUGH PIPE ANYWHERE IN THE WORLD... CHANCES ARE IT'S CONTROLLED BY...

FISHER GOVERNOR COMPANY

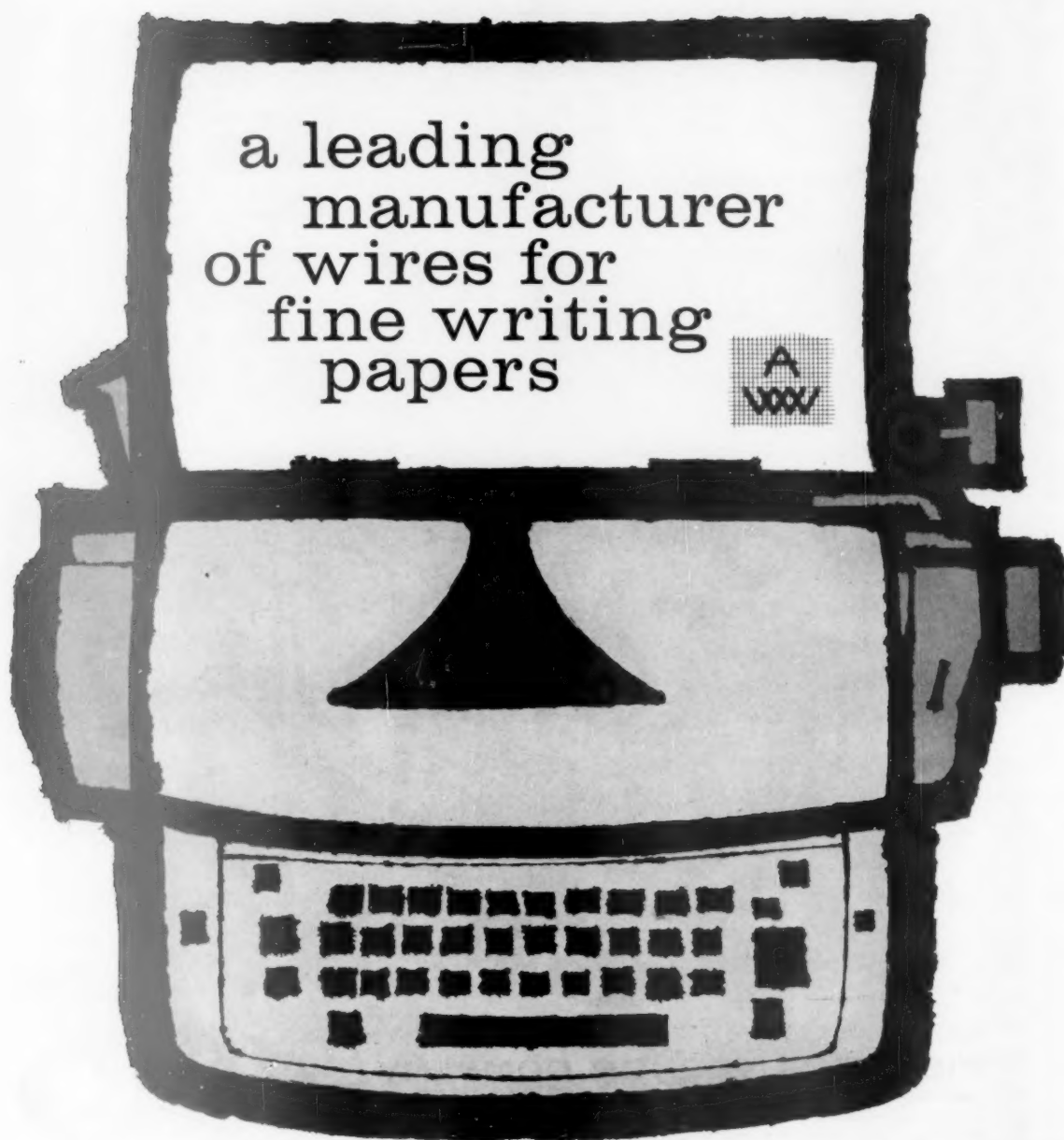
Marshalltown, Iowa / Woodstock, Ontario / London, England

BUTTERFLY VALVE DIVISION: CONTINENTAL EQUIPMENT CO., CORAOPOLIS, PENNSYLVANIA



SINCE 1880

APPLETON
WIRES
ARE
GOOD
WIRES



APPLETON WIRE WORKS CORP., PLANTS AT APPLETON, WIS. AND MONTGOMERY, ALA.; INTERNATIONAL WIRE WORKS, MENASHA, WIS. AN AFFILIATED COMPANY



THESE PRIME RESOURCES

B.C. Forest Service Photo

PROMISE HIGH QUALITY BLEACHED PAPER PULP IN 1961

Early in 1961, a new high quality market pulp mill will go on stream near Castlegar, British Columbia, at the foot of the Arrow Lakes region of the Columbia River. Celgar Limited will utilize almost 900,000 acres of prime northern-type forest lands held under a Tree Farm Licence in perpetuity.

All the resources necessary for efficient mill operation are available — wood to meet any future demand, plentiful water from the clear Columbia, power and gas, transportation

from the mill site to markets, and trained people from established industrial communities in the area.

Celgar Kraft will combine many of the best qualities of Northern and Western pulps to produce a product with an exceptional balance of properties. The long, tough fibres from high-density softwoods develop high bursting strengths coupled with outstanding tear resistance over a wide range of freeness, and in a variety of stock preparation equipment.

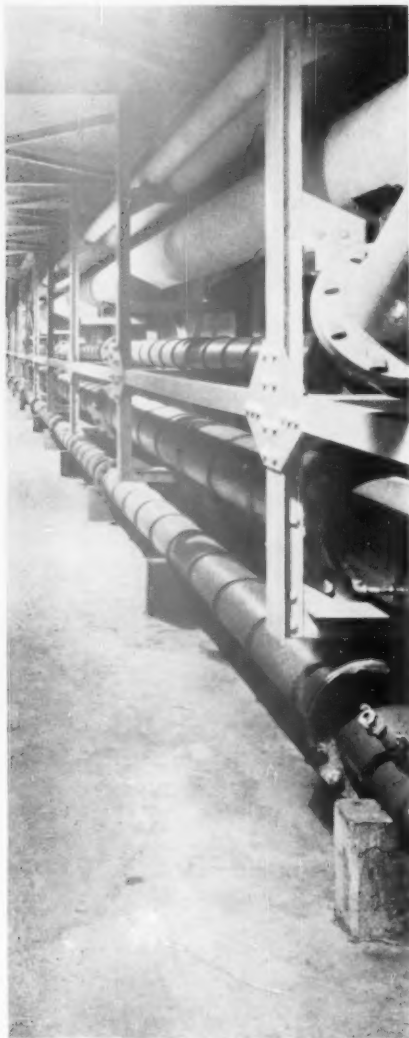
COLUMBIA PULP SALES LIMITED has been formed to distribute Celgar Kraft pulps and Columbia Cellulose sulphite pulps. Offices are located at:
1030 West Georgia St., Vancouver 5, B.C.
1600 Dorchester St. West, Montreal 25, P.Q.

V4247-1



Celgar Kraft

READ The Facts BETWEEN THE LINES!



You can count on NAYLOR for pipe fabrications in carbon steel, alloys or stainless steel.



Pipe sizes range from 4" to 30" in diameter and wall thickness up to 8 gauge; special fabrications from 3" to 44" and wall thickness up to $\frac{3}{8}$ ".



Standard fittings are available from stock.



For the complete story, ask for Bulletin No. 59 covering pipe and fittings, and Bulletin No. 525 on special fabrications.

Send specifications for quotation.



NAYLOR PIPE *Company*

1271 East 92nd Street, Chicago 19, Illinois

Eastern U. S. and Foreign Sales Office: 60 East 42nd Street, New York 17, N. Y.



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during the
Annual TAPPI Meeting

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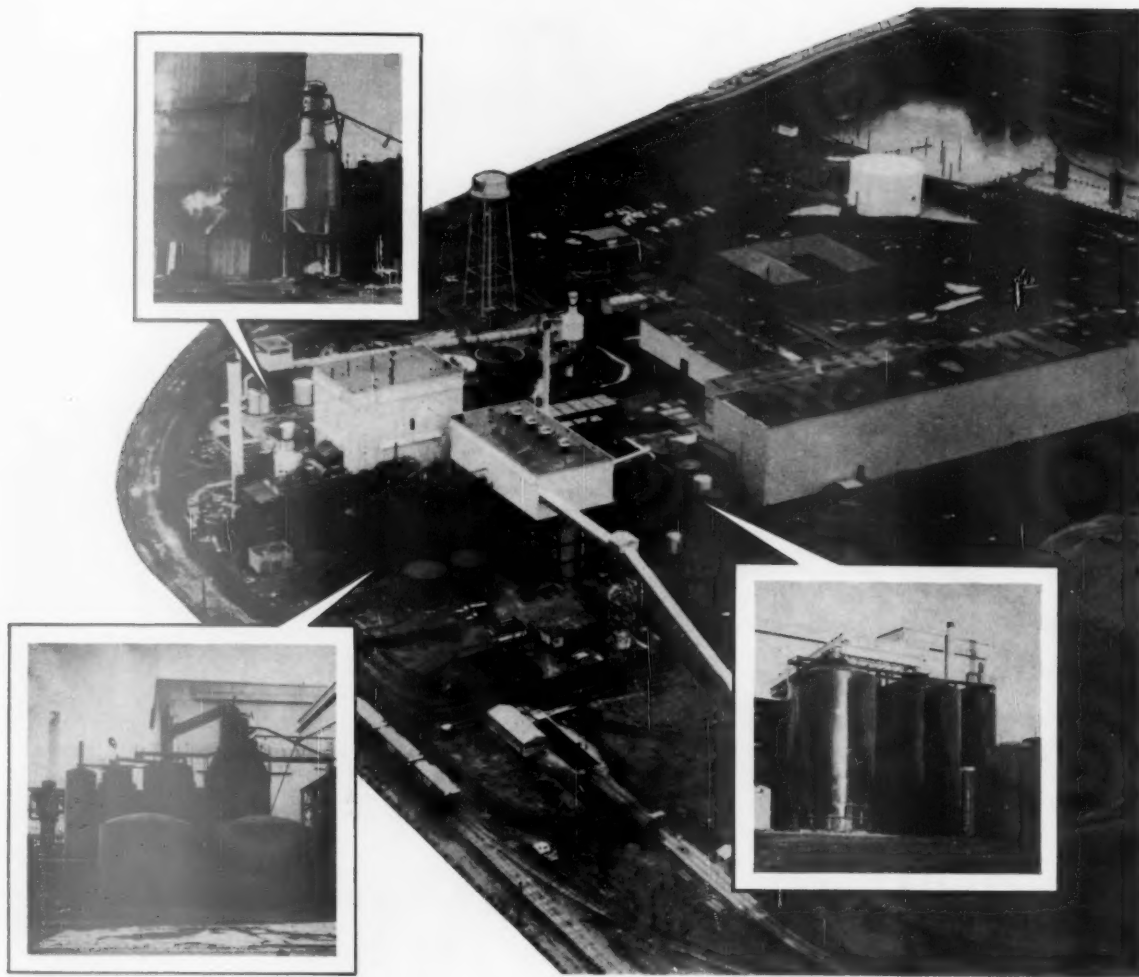
KANSAS CITY

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ST. LOUIS



TANKS AND DIGESTERS BY AMERICAN
in the huge Georgia-Pacific Mill



NORTHWEST DIVISION

518 N. E. Columbia Boulevard • Portland, Oregon

American Pipe and Construction Co., supplied all the steel tanks and digesters as well as the piping, stacks, and miscellaneous steel items required for the Georgia-Pacific Paper Company's 100,000 ton Kraft mill at Toledo, Oregon.

YOU can save money, time and trouble by taking advantage of American's 35 years of experience serving the Northwest as designers, fabricators, and erectors of steel plate installations.

An American sales engineer can be helpful to you in planning your next job.

For literature or service in the Northwest write or call:

PORTLAND: P. O. Box 1898, Piedmont Station
 Portland 11, Oregon, BUTler 5-2531

SEATTLE: SHERwood 6-0370 • **SPOKANE:** RIVERside 7-3634



PAPER DIVISION DOMINION ENGINEERING COMPANY LIMITED

Head Office & Works: LACHINE, QUE., CANADA—P.O. BOX 220, MONTREAL, QUE.

Branch Offices: TORONTO • WINNIPEG • VANCOUVER

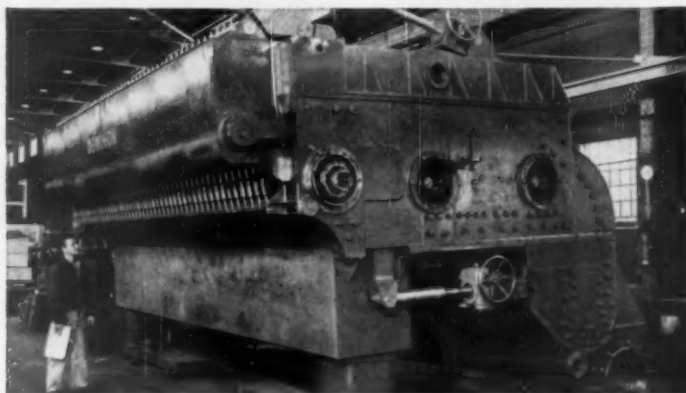
PULP AND PAPER MAKING MACHINES AND COMPONENTS OF ALL TYPES

Dominion Engineering designs and builds complete paper, pulp, board and specialty machines of all types, and components particularly suited for modernization and modification of existing machines, including

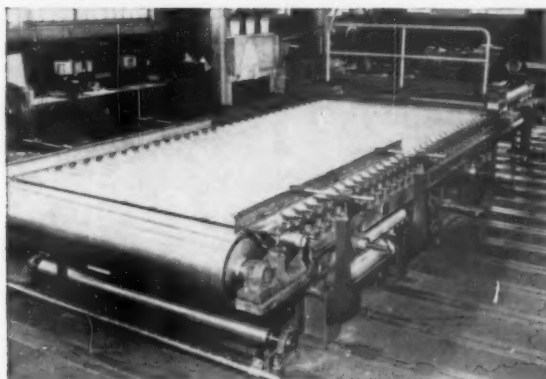
Pressure Head Boxes—Fourdriniers—Couch and Press Sections—Suction Rolls—Dryers—Calenders—Reels—Winders and Rewinders—Mechanical Drives—Pulp Grinders—Electric Steam Generators.



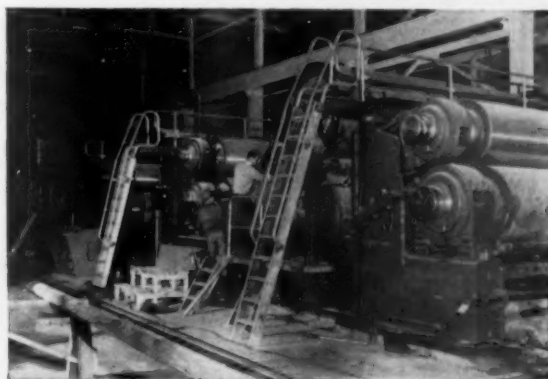
DOMINION WINDERS AND REWINDERS cover the full range from small low speed rewinders to the highest speed news machine winders. Designed to ensure maximum stability under all operating conditions, they incorporate automatic riding roll load control, readily adjustable slitters of either the shear cut or score cut type, a variety of paper unloading arrangements and special winder drum fluting to reduce noise.



DOMINION PRESSURE HEADBOXES incorporate such advanced design features as: fully adjustable slice; parabolic cross-flow distributors and hydraulic rectifier roll drives. Dominion Pressure Headboxes are installed on many fine paper and newsprint machines to increase production and improve product quality.



DOMINION FOURDRINIERS are designed and built to mill requirements: fixed or removable, shaking, which incorporate the patented Torsion Bar Suspension, or non-shaking, etc. Dominion Fourdriniers reduce wire changing time. Most important, complete designing and manufacturing control by Dominion Engineering means total responsibility and service to users of Dominion equipment.



DOMINION SUCTION ROLLS benefit from many years of experience and development and incorporate such features as open ended design for accessibility combined with anti-friction bearings, floating suction box tops and drilling patterns designed to reduce noise level and shadow marking. The shells can be provided in all sizes in bronze or forged stainless steel, the latter permitting the high line pressures available from Dominion oil-hydraulic loaded press sections.



KEOGELS

*Pregelatinized—ready to use
—beater starches.*



KEOTACS

*Cationic—effective—
economical wet end additives.*



KEOZYMES

*Enzyme converting starches for
sizing and coating adhesives.*



KEOCLORS

*Oxidized starches—
complete line for sizing and
coating adhesive application.*



KEOGUMS

*New line of corn starch
derivatives for sizing and
coating adhesive application.*



KEOFILMS

*Economical—controlled
viscosity thinboiling starches
for special sizing
applications.*

*There's More to Buying Starch
than Getting a Good Product...*

TO IMPROVE QUALITY SPECIFY...



STARCHES...for every Paper Mill Operation!



TO LOWER COSTS...

call on Hubinger Technical Service.
You can depend upon our labora-
tory facilities and trained field
personnel to supply the best and
most economical solution to your
starch and adhesive problems.

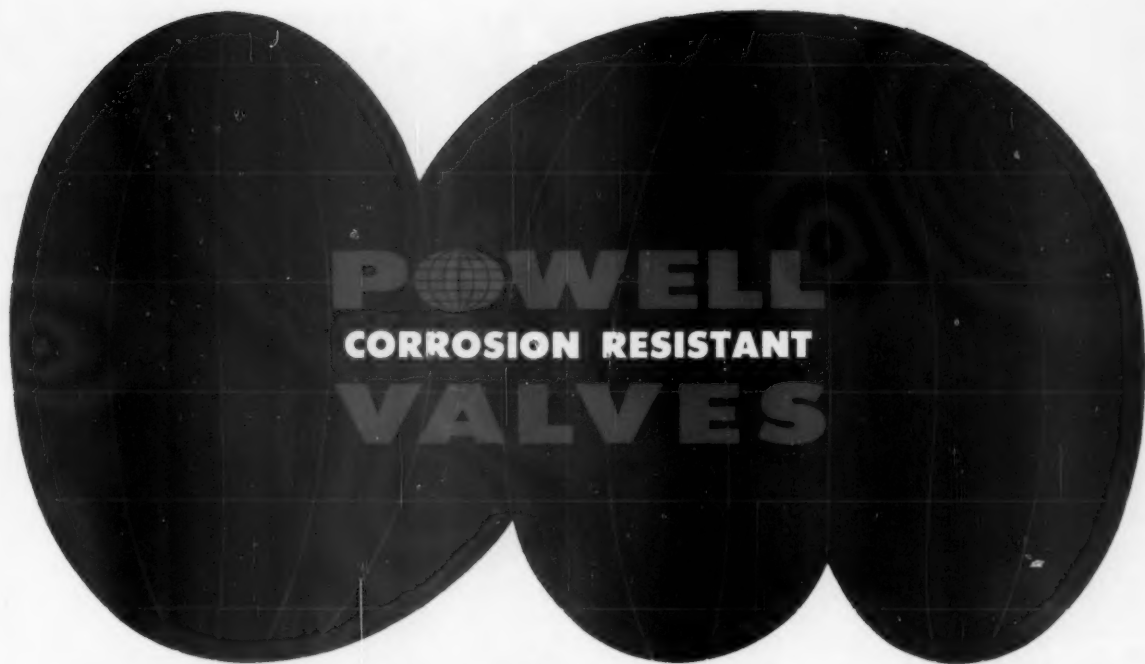
There are OK BRAND products—
made especially for every paper mill operation that
calls for starches and adhesives. Best of all,
there is no extra tariff on any of these top-quality
Hubinger items. If your mill needs special
starch products to meet improved quality or
strength specifications, let our nearest paper-starch
technical service representative study your needs.
He is prepared to quickly offer valuable aid.
Just phone or wire us.

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performance that makes a world of difference

The Powell Special Design and Alloy Valve Division was created to study and solve the flow control problems arising from the increasing number of corrosive fluids used in the Chemical and Process industries.

As a result, Powell has developed valves that can be depended upon for long, uninterrupted service under the most corrosive conditions; valves that require little

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Powell offers valves to handle practically every corrosive fluid—valves of every design and in the largest selection of metals and alloys. Contact your local Powell distributor. Or write or call us direct. Our consulting engineers are at your service.

Powell . . . world's largest family of valves

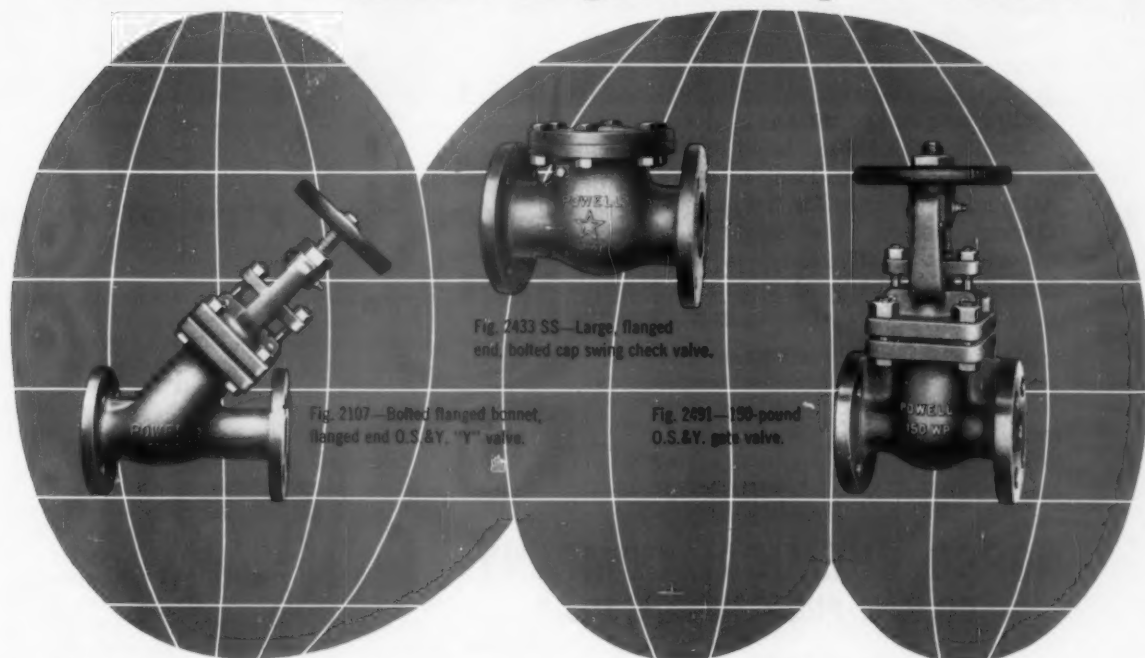


Fig. 2433 SS—Large, flanged end, bolted cap swing check valve.

Fig. 2107—Bolted flanged bonnet, flanged end O.S.&Y. "Y" valve.

Fig. 2491—150-pound O.S.&Y. gate valve.

THE WM. POWELL COMPANY • DEPENDABLE VALVES SINCE 1846 • CINCINNATI 22, OHIO

A SKILLED HAND IN CHEMISTRY...AT WORK FOR YOU

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IMPROVED
PAPERS?**

**NOPCO
POINTS
THE WAY**



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Perhaps the skilled hand of Nopco can go to work for you. Back of every chemical made by Nopco for the paper industry stands Nopco Technical Service—an experienced staff ready to assist with laboratory data and recommendations based upon your specific requirements.

DEFOAMERS

WAX SIZES

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FELT WASHING DETERGENTS

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ANTIBLOCKING AGENTS

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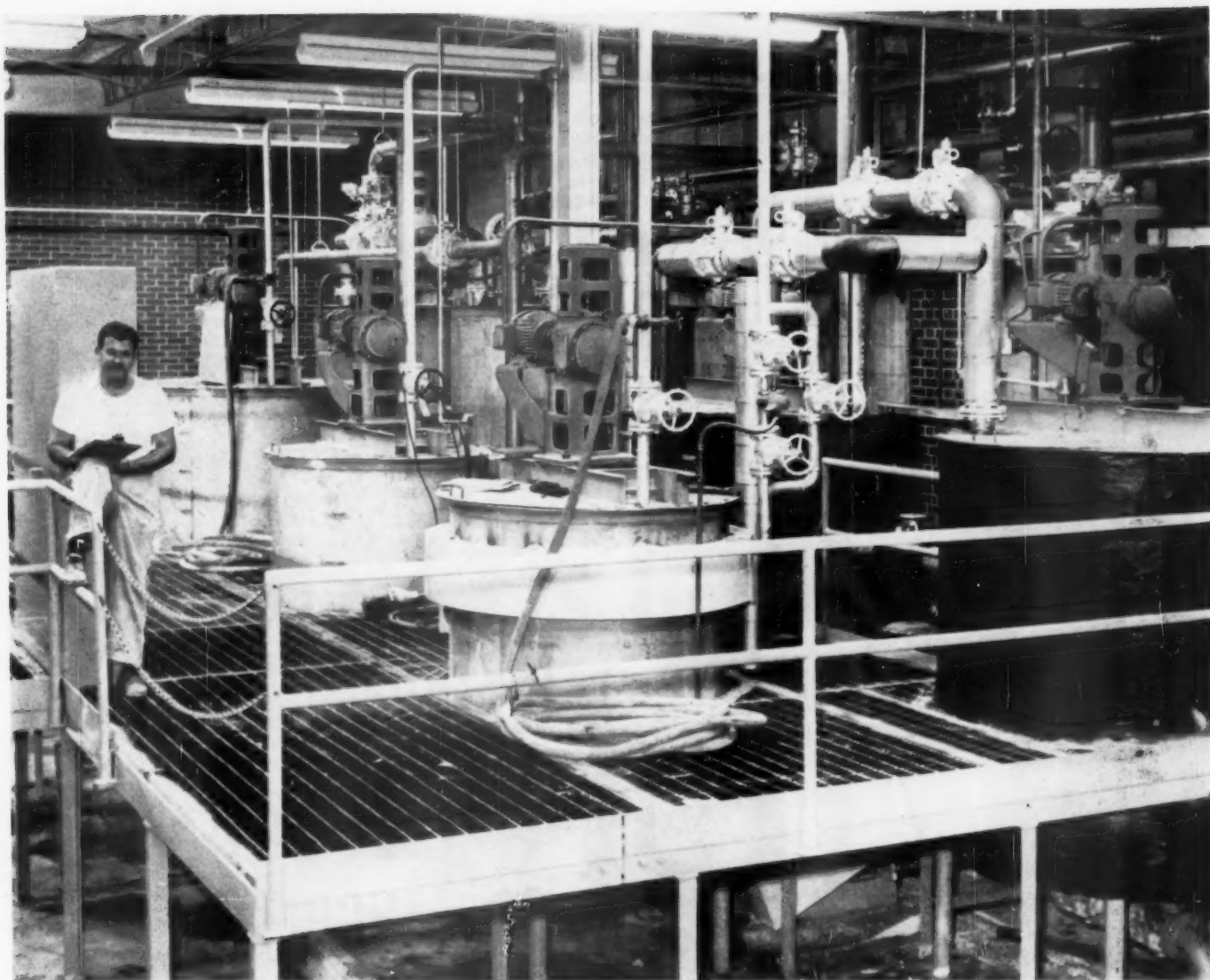
POLYETHYLENE EMULSIONS

DE-INKING AGENTS

NOPCO CHEMICAL COMPANY
60 Park Place, Newark, N.J.



Plants: Harrison, N.J. • Richmond, Calif. • Cedartown, Ga. • London, Canada



Compact station employing seven LIGHTNIN Mixers feeds adhesive and coatings at St. Joe Paper Company, Port St. Joe, Florida.

How to mix coatings and keep them mixed

If coatings and adhesives pose production problems in your mill, here's proof that they needn't.

In this kraft board mill, the coating and adhesive plant is a smooth-running operation that feeds uniformly consistent materials to the laminator 24 hours a day. A large part of the secret of its success is good mixing with LIGHTNIN Mixers.

How coating process works

1. In the slurry make-up tank at the rear, a turbine-type LIGHTNIN Mixer swiftly incorporates dry clay into the liquid, breaking down all lumps and agglomerates.
2. Slurry then goes to the holding tank. Here another LIGHTNIN Mixer keeps it in uniform suspension without settling and without excess surface action.
3. Adhesive make-up and cooking take place in the next two tanks. LIGHTNIN Mixers disperse the solids evenly in these 500-gallon tanks, keep starch moving all through the cook, and prevent hot spots from developing.
4. Finished adhesives go to the two side tanks where

LIGHTNIN Mixers hold them uniform and prevent skinning over while cooling.

Secret: controlled mixing

Four *different* mixing jobs. LIGHTNIN Mixers do them all—with never a worry about consistency or uniformity.

Wherever you need controlled mixing or agitation to help your mill system work better, you can get it with LIGHTNIN Mixers. You get the precise power level you need to accomplish the job you want done within a given time. Results are guaranteed.

Your LIGHTNIN Mixer representative can give you the details. He's listed in Thomas' Register. Or write directly to us.

Lightnin Mixers

MIXCO fluid mixing specialists

MIXING EQUIPMENT Co., Inc., 141-b Mt. Road Blvd., Rochester 3, N.Y.
In Canada: Greey Mixing Equipment, Ltd., 100 Miranda Ave., Toronto 19, Ont.

Name your process; Bristol can help you measure, record or automatically control it.

Just one example: Wood Conversion Company's new Riverside, N. J., plant with an all-Bristol process instrument installation, part of which is shown below. Here precise instrument control helps turn out, in a wide variety of forms, Balsam Wool® for housing insulation and Tufflex® used for cushion padding, sound deadening, and protective packaging. Costly human errors are eliminated, improving product uniformity and releasing valuable supervisory time for more important duties.

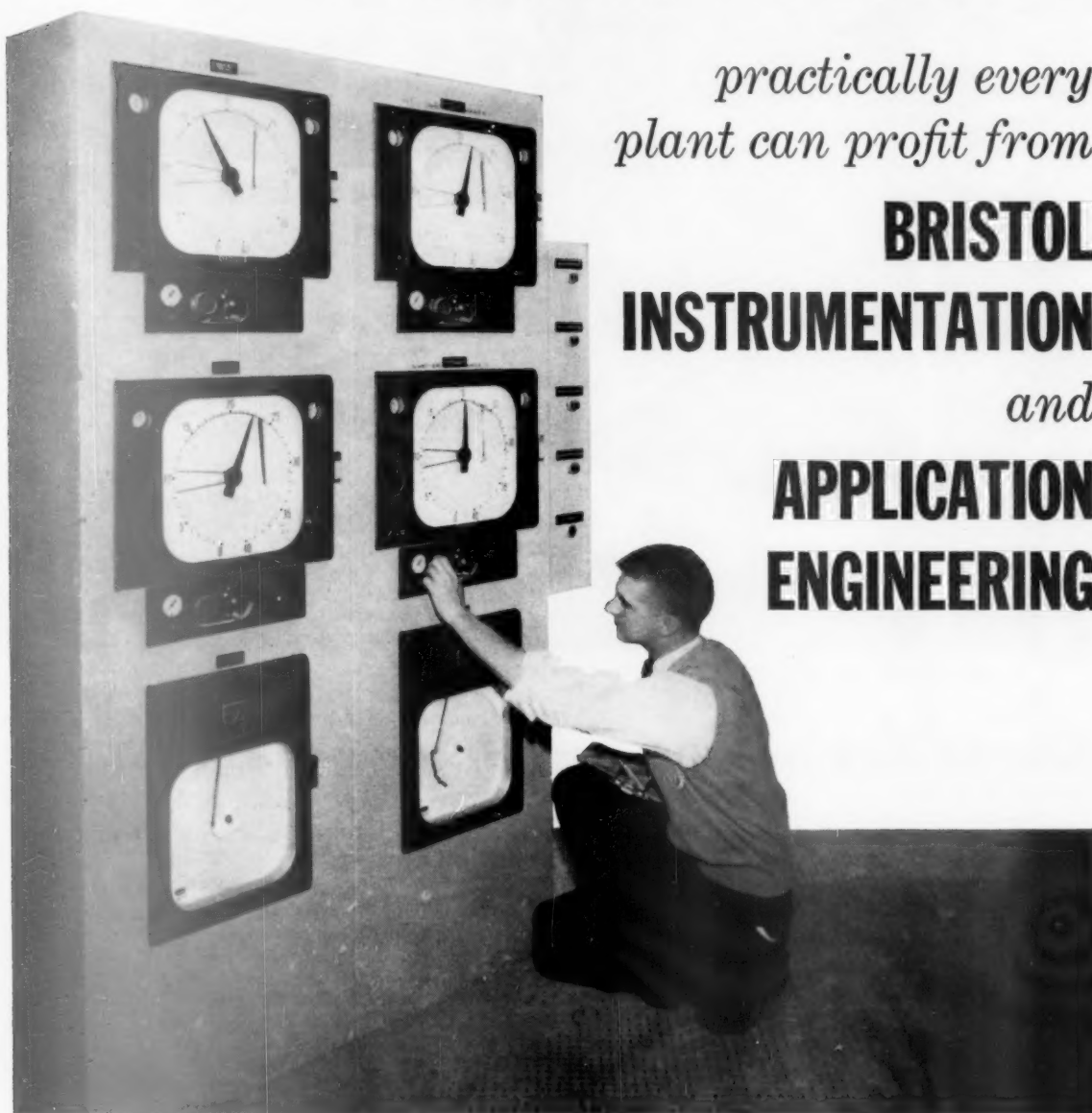
Whatever your plant or process, Bristol engineers—as at Wood Conversion—are always ready to work with your engineers in setting up a new instrumenta-

tion system or in modernizing and improving your existing system.

Temperature, pressure, absolute pressure or vacuum, flow, liquid level, humidity, pH, tension, thickness, speed and mechanical motion are just a few of the variables that can be recorded or exactly controlled.

Bristol makes the most complete line of instruments on the market—full-size, miniature, electronic and pneumatic types—for measurement, recording, automatic control and telemetering. Bristol's wide line insures you of the right instrument for your job, every time, and Bristol engineers are always ready to assist you in selecting it. Write: The Bristol Company, 142 Bristol Road, Waterbury 20, Conn. 9.24

*practically every
plant can profit from*
BRISTOL
INSTRUMENTATION
and
**APPLICATION
ENGINEERING**



BRISTOL ... for improved production through measurement and control
AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

Solvay "Miniature Mill" helps customers improve pulps

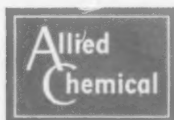


Handsheet in process of manufacture from customer's pulp sample will be used for testing.

Solvay Chemicals For The Paper Industry

Caustic Soda
Chlorine

Hydrogen Peroxide
Soda Ash



SOLVAY PROCESS DIVISION

61 Broadway, New York 6, N. Y.

SOLVAY branch offices and dealers are located in major centers from coast to coast. Send export inquiries to Allied Chemical International, 40 Rector St., New York 6, N. Y.

PULP & PAPER — February 1960

When you submit a pulp sample to Solvay for analysis, it is literally "put through the mill." Its fitness for the product you want to produce is determined in a laboratory mill that duplicates actual production conditions.

Solvay graduate engineers, versed in pulping, bleaching and papermaking, conduct these tests. They employ novel experimental techniques utilizing a wide variety of basic and advanced equipment to produce practical results for the industry. They can recommend the *best bleaching sequence* for a mill without prejudice. Solvay is actively interested in chlorine, chlorine dioxide, hydrogen peroxide and hypochlorite.

Write for information or technical aid in applying any of these bleaching agents or other Solvay® products listed.



Wood chips (right) are resolved in the digester, then produced into fully bleached pulp (left) for hand-sheet test.



Inspection of handsheet reveals suitability for physical testing and cleanliness of pulp (presence of foreign dirt or unbleached fiber bundles).

LOBDELL 48" ROLL GRINDER



First Alaska Installation! just completed!

At Alaska Lumber & Pulp's new Sitka plant the Lobdell Roll Grinder was selected after careful consideration because of its ruggedness and reliability.

The remoteness of this installation demanded absolute reliability. —for this, the first major roll grinder in the Northland. United Engineering and their Northwest representatives, Hallise Machinery Co. of Seattle, engineers, presented the facts about this Roll Grinder application. Let United Engineering review your roll grinding problems.

- CHILLED IRON ROLLS
- MACHINE CALENDAR STACKS
- ROLL GRINDING MACHINES
- ROLL CALIPERS

UNITED ENGINEERING

AND FOUNDRY CO. • 948 FORT DUQUESNE BOULEVARD • PITTSBURGH, PENNA.

New Signode way gets paper to destination in excellent condition

Paper poses a problem that has probably vexed mill and printer alike for as long as paper has been shipped.

How do you keep packaged paper from racking and shuffling during shipment?

Good arrival condition is especially important for fine paper. Damaged edges and misalignment of stacks foul up the performance of high speed presses. And, as just about everybody knows, paper and speed and deadlines are often wrapped up in the same package.

IT'S ONLY AIR

Air is what makes trouble in the packaging of paper. Air is trapped between the sheets as paper is stacked. Trimming helps seal the air in.

IT'S GOT TO GO

Getting that air out is the problem, or was before Signode found the way—but more about that later. Ever try to tighten the belly band on an ornery horse? That's pretty much what paper mills were up against when they applied ordinary strapping techniques to their quality packaged products.

Sometimes, experimentally, they'd throw caution to the winds—beef up top cleats or battens, sacrifice a few of the top (and sometimes bottom) sheets to denting, and really tighten up those steel straps to the limit. Know what would happen in most cases? After a few days of just sitting, air would leak out of the package, and the straps would be loose.

NOW—THE ANSWER

Signode has been working on this problem

with leading paper mills for many years. The answer and the methods that make it work are now available. Compression is the heart of it...the new Signode Compression Strapping Station.

Correct compression expels the air between the sheets, but does not damage the paper.

IT WORKS

Compression strapping the Signode way, which means combining it with other good packaging practices, practically eliminates shuffling, reduces racking, minimizes objectionable bowing in skid tops, and permits substantial over-all savings in paper packaging time *and* cost.

WE'RE READY

Signode has established a group of competent, trained, and experienced specialists in paper packaging. These men, in addition to and together with our regular field engineering, testing laboratory, and sales representative staffs, are ready to serve paper mills as engineering consultants. They are ready to help you in the important big or little changes in your packaging practices that will get your paper to destination in perfect condition, at less cost.

YOU'RE INVITED

We recognize your right to skepticism, your right to ask to be shown. We, in turn, ask the opportunity to show you what is being done now and to relate it to *your* practices and requirements. We feel sure that you will find it most worth while to look into this, now. The first step is simple. Just write on your letterhead for information about compression strapping of paper.



First in steel strapping

SIGNODE STEEL STRAPPING CO.

2672 N. Western Avenue, Chicago 47, Illinois

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto



At ORISKANY...we do it the modern way!

You can't beat modern methods when it comes to getting a job done quickly and efficiently! And you can't beat Oriskany Waterbury Felts for quality and durability, because they're produced on the finest precision machines. During the past few years we have installed new looms, new spinning frames, new yarn twistors, new extractors and new dryers in a continuing program of expansion and modernization. And there's more coming! Another giant 480" loom will be in operation soon.

Modern equipment isn't the only reason for the superior quality of Oriskany Felts. Our skilled technical staff can recommend special chemical treatments or synthetic blends to meet unusual requirements. Whether you're running the finest tissue or the heaviest board, you can depend on Oriskany Waterbury Felts to give you top performance on your machines!

First choice—because They last



WATERBURY FELTS

H. WATERBURY and SONS COMPANY • ORISKANY, NEW YORK

SWW

CLAY

for extra brightness

If you're looking for more brightness in filler clays, many paper makers find that SWW is their answer. SWW's GE Brightness is 82-83.5 percent, but it is equivalent in all other physical properties to air-floated filler clays.

SWW is available in lump or pulverized form. It can be shipped

bagged via boxcar or truck; bulk in hopper or box cars.

SWW is one of the complete range of filler and coating clays, air-floated and water washed, supplied by Huber to the paper and container industries.

Write for working samples.



SPECIAL WATER WASHED



J. M. HUBER CORPORATION 630 Third Avenue, New York 17, New York

Mines and Plants: Huber, Ga., Graniteville and Langley, S.C.



One of the important marketing functions of a waxed paper wrapper is to help the supermarket shopper identify her favorite brand.

TITANOX® helps her find her brand

Such identification is made easier by sharpening the contrast and legibility of the wrapper through white pigmentation. And the best effects are always achieved by the remarkable whitening, brightening and opacifying power of TITANOX white titanium dioxide pigments.

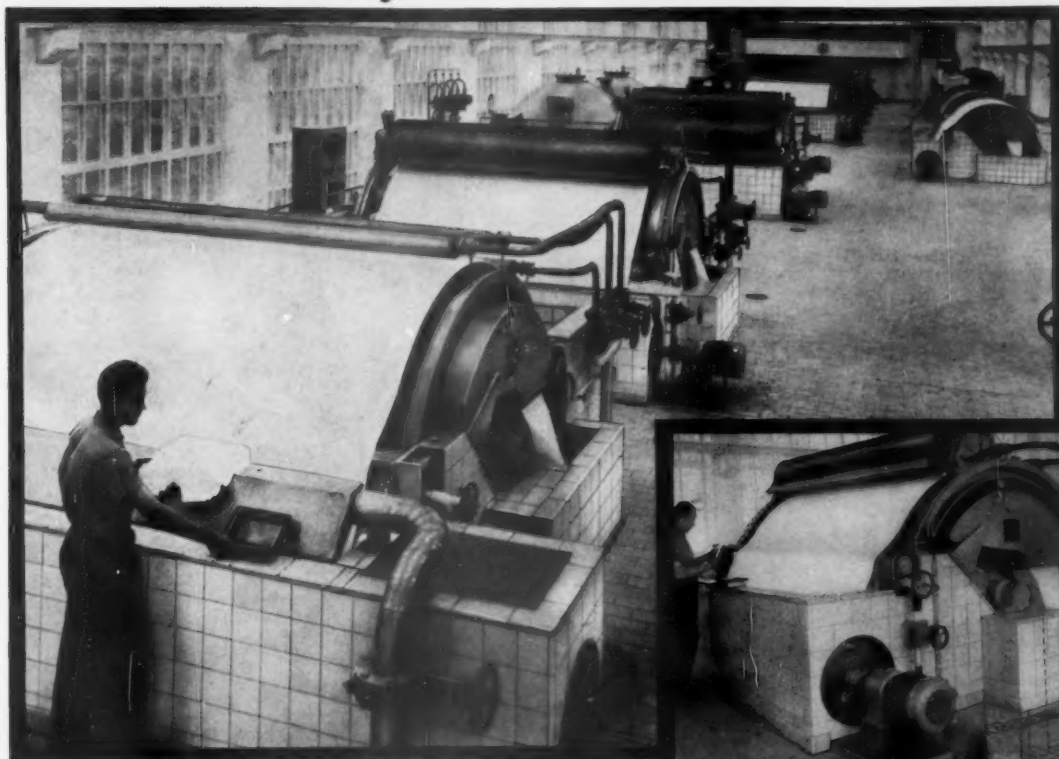
Not only food wrappers, but *all* types of paper products are better pigmented with TITANOX—the favorite brand of most papermakers. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; offices and warehouses in principal cities. In Canada: Canadian Titanium Pigments Ltd., Montreal.

TITANIUM PIGMENT CORPORATION
SUBSIDIARY OF NATIONAL LEAD COMPANY

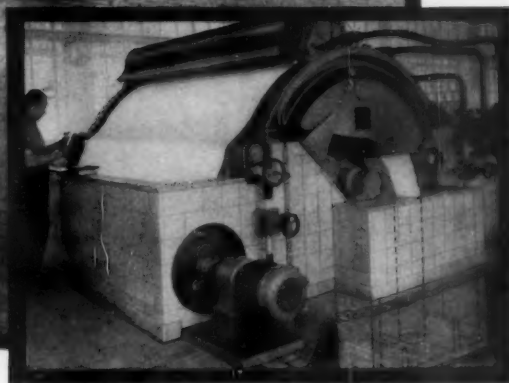
February, 1960 — PULP & PAPER

12 BIG REASONS

why KAMYR leads the field



Washer floor showing eight M54s being used as washers and three M54s being used as thickeners



M54 Kamyr vacuum washer with cutaway drawn to show seal box and short drop leg

More than 200 new M54 KAMYR vacuum washers installed since 1954!

Here's why:

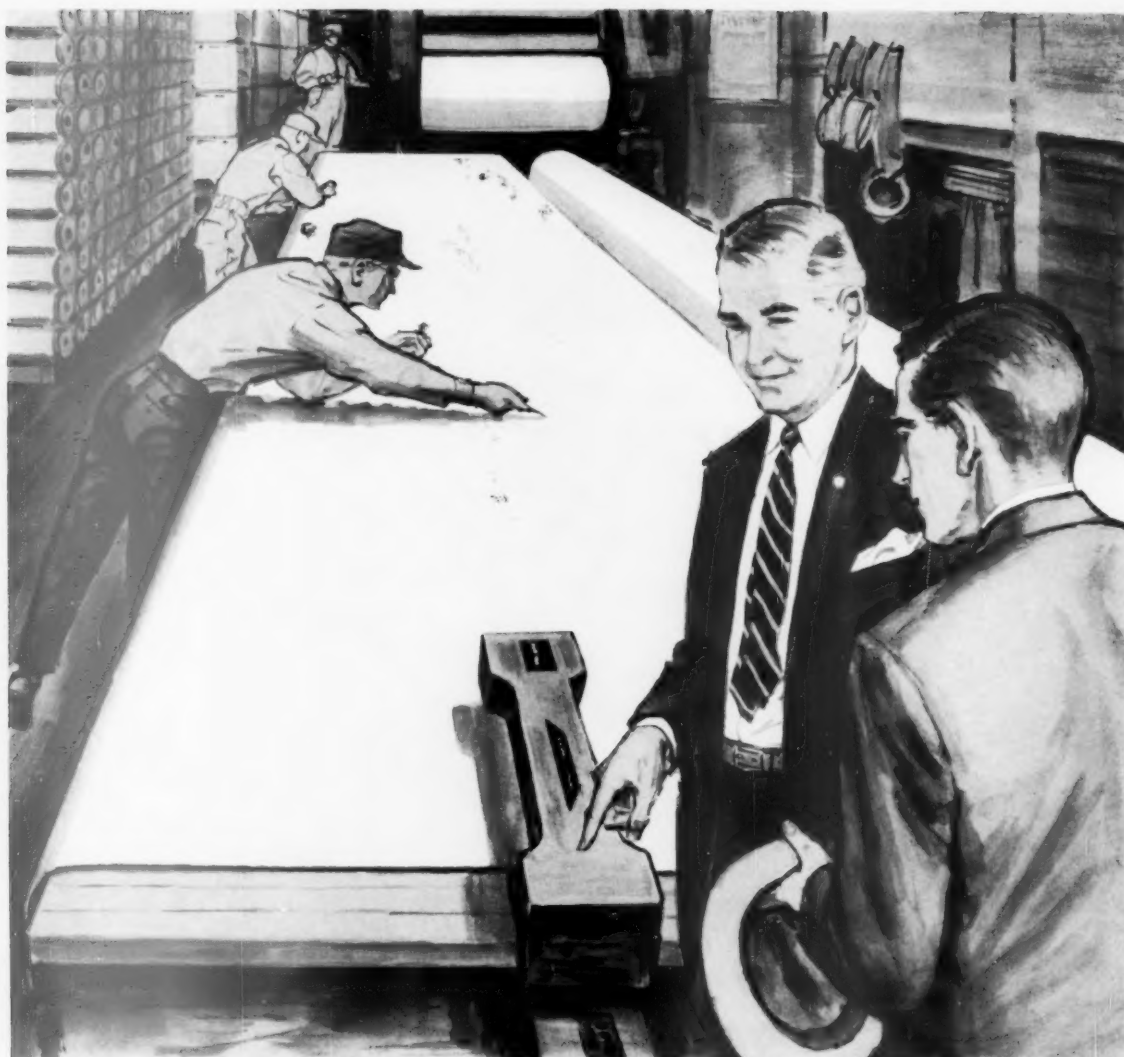
1. Greater capacity
2. Lower power requirements for white water recirculation
3. Lower white water piping costs
4. Excellent sheet formation
5. Uniform washing action
6. Utilizes full indicated vacuum
7. Excellent pick-up
8. Excellent pick-off
9. Less foaming
10. Up to 30% consistencies when equipped with vacuum pump and press rolls
11. Mechanically simple
12. Easily installed

For full information on the design features which have produced these operating results, phone or write today.



THE
SANDY HILL

IRON AND BRASS WORKS
HUDSON FALLS, N. Y.



INSPECTION DEPARTMENT AT BRANDON

"Here's where size and stability are assured"

Brandon double-checks dimensional stability. Both before and after the special preconditioning process, Brandon Dryer felts undergo a thorough inch-by-inch inspection. Each felt is precisely metered and cut to the specified length so that clipper seams, permanently anchored, will fit your machine perfectly.

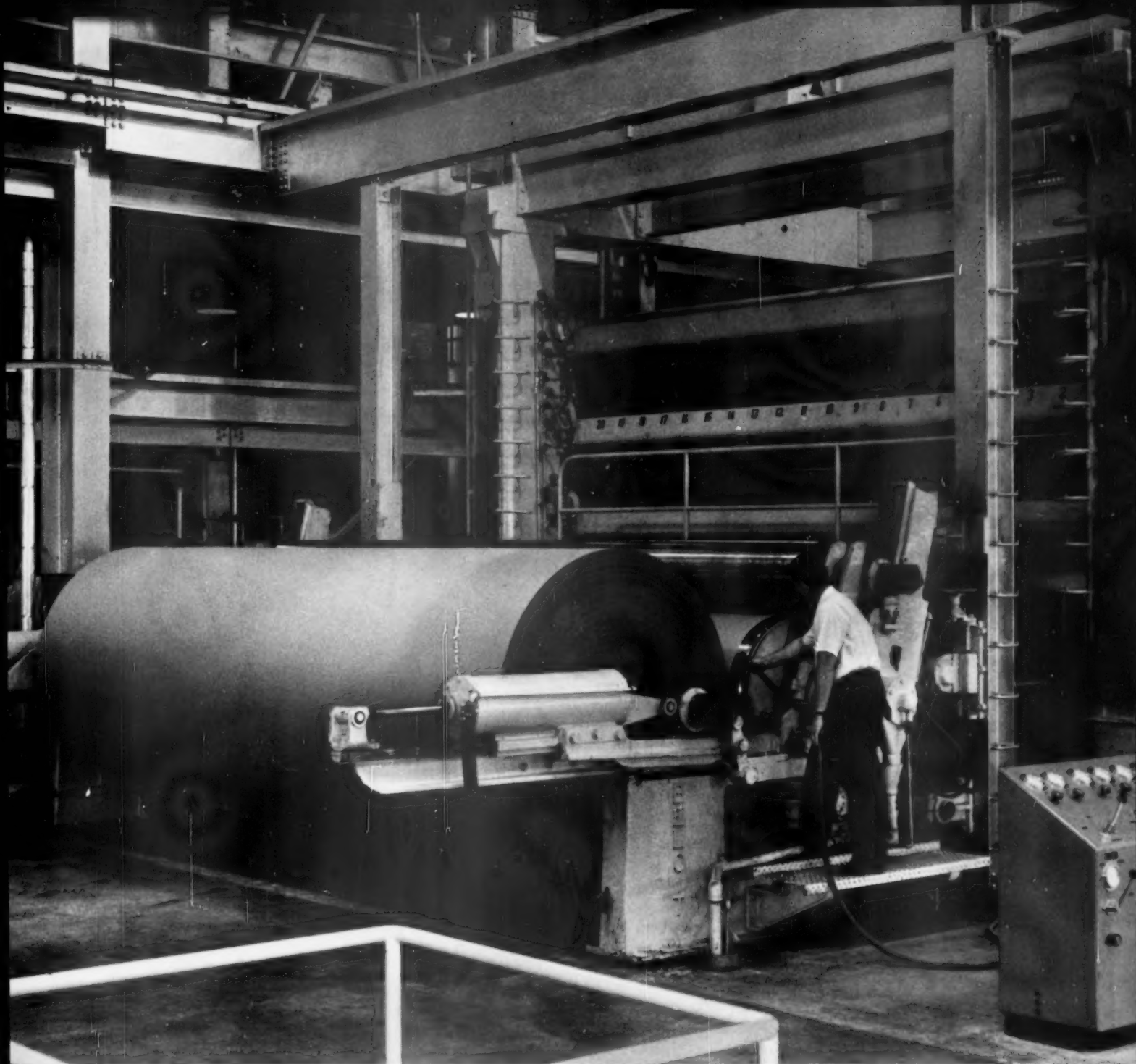
Result? Easy installation... truer running

— longer lasting... more production at lower cost. See your Brandon man.

BRANDON SALES, INC.
BRANWOOD STATION, GREENVILLE, S. C.



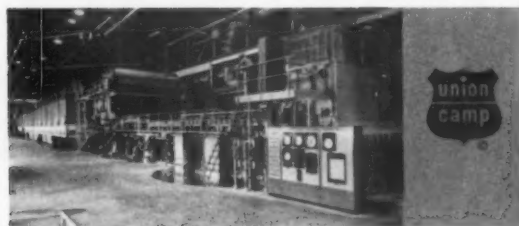
REPRESENTATIVES: Northern and New England States: ORTON CORP., FITCHBURG, MASS. Midwestern States: L. J. MEYERS, KALAMAZOO, MICH. West Coast: M. J. MAGUIRE, PORTLAND, ORE. Southern States: CLYDE H. WHITE, GREENVILLE, S. C.



S. R. CHRISTENSEN

Pneumatic Reel, No. 4 Machine, Union Bag-Camp Paper Corporation, Camp Division, Franklin, Virginia

Union Bag-Camp Paper Corporation



Production flexibility on bleached and unbleached kraft grades: Union Bag-Camp Paper Corporation's new No. 4 machine at Franklin, Virginia. Successful start-up of this 236' machine marked the culmination of a four-year expansion program at Franklin. For further views and details, please turn the page.

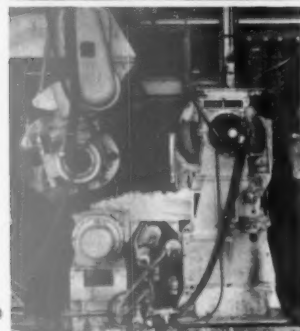
**close-up of 236" Beloit Kraft Paper Machine at
Union Bag-Camp Paper Corporation, Camp Division**

Designed to run in the 2000 fpm range, this versatile machine can operate efficiently over a wide range of production grades.

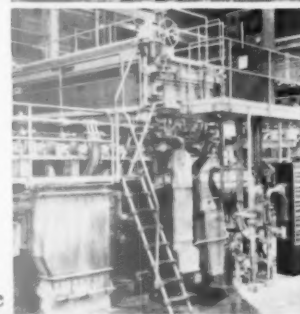
The addition of No. 4 machine and the rebuild and modernization of two other machines have resulted in a 50% increase in daily output. (a) Oscillating unwind stand, water-cooled brake, and Beloit tru-tension regulator; (b) suction pickup arrangement; (c) Beloit air-cushioned inlet and shaking Fourdrinier; (d) Beloit high-speed suction pickup press section; (e) Beloit Model "L," heavy-duty kraft winder; (f) Beloit differential drive; (g) twin open-sided calender stacks.



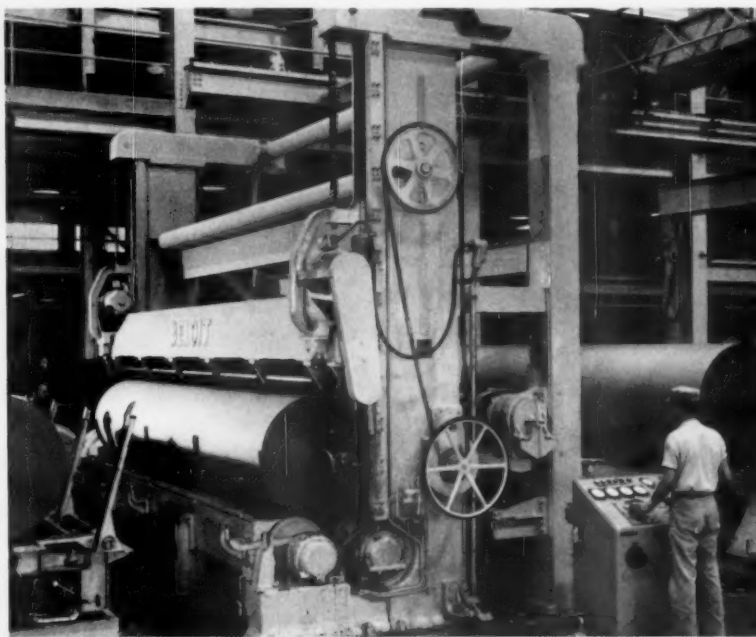
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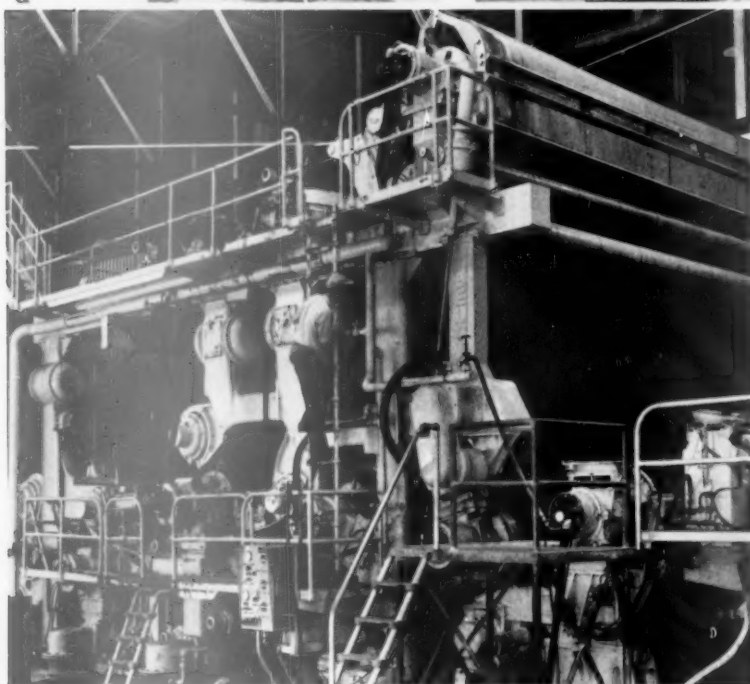
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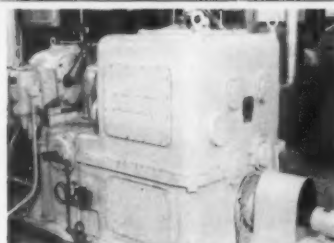
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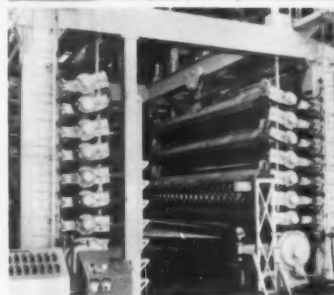
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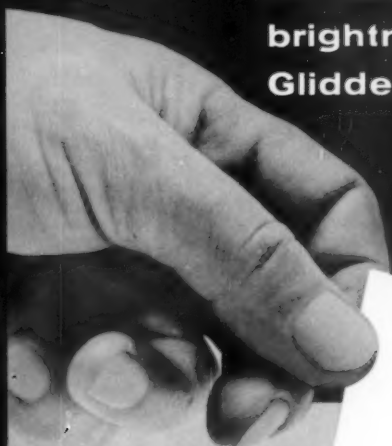


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PAPER MACHINERY

your partner in papermaking

Card Sense

Discerning business people insist
on cards with the whiteness,
brightness and opacity of
Glidden Zopaque® Titanium Dioxide



Albert J. Hodges



Fine papers of all types benefit from Glidden Zopaque,
the whitest white pigment available.

The outstanding dispersion characteristics of
Zopaque assure smoother paper surfaces. Its superior
optical qualities provide minimum show-through. Zopaque
is available in various grades specially developed
for coatings and beater addition.

Write for full facts on the many advantages
of using Glidden Zopaque Titanium Dioxide in the
manufacture of paper products.



FINEST PIGMENTS FOR INDUSTRY

The Glidden Company
Chemicals—Pigments—Metals Division
Baltimore 26, Maryland

(This advertisement is printed on paper stock containing Glidden ZOPAQUE Titanium Dioxide.)

TWIN SOUTHWORTH INSTALLATION



*Cuts
Finishing
Costs*

at ST. REGIS

One of two identical finishing room installations
at the St. Regis Paper Company.

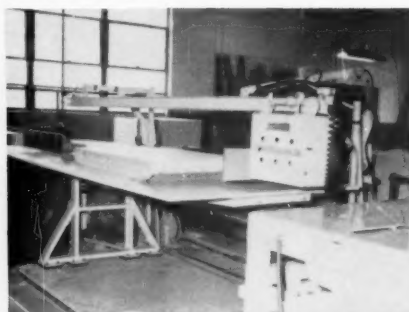
FULLY EFFICIENT FINISHING ROOM MECHANIZATION MINIMIZES WASTE...AFFORDS MAXIMUM PRODUCTIVITY

Mass production trimming achieving lower finishing costs through greater efficiency, greater productivity of manpower and machines, with less waste and accident hazard. This is the success story of still another low-cost, custom-engineered Southworth installation based on individual plant requirements.

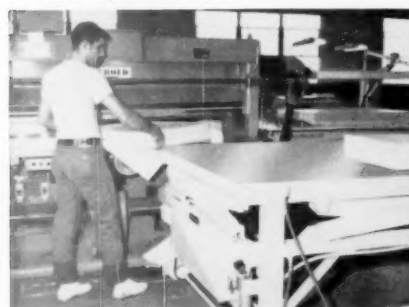
Photos Courtesy of St. Regis Paper Company



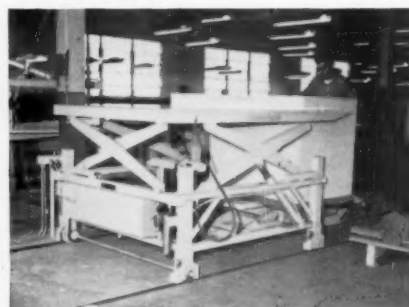
1. Paper being transferred from Straddle Lay-Up Table to Inventory Table.



2. Paddle Conveyor in ready position for demand Trimmer charging.



3. Loading Straddle Stacker Table from Trimmer.



4. Straddle Stacker discharging paper to Skid.



For Details Write or Call Direct

SOUTHWORTH MACHINE CO.

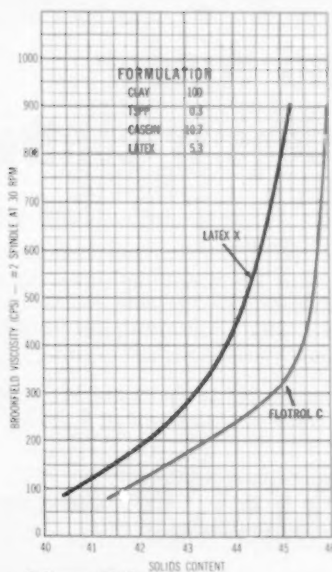
228 WARREN AVENUE, PORTLAND, MAINE, SPruce 4-1424

Paper Conditioners; Automatic Skid Lifts; Lift Tables; Air Flotation Tables; Skid Turners; Hand, Foot, Motor Driven Punching Machines; Humidifiers; Envelope Presses; Punch Heads; Tabbing Knives and Corner Cutters plus Custom Built Equipment.

Now you can keep solids up
viscosity down with

DEWEY AND ALMY'S
flotrol C
PAPER COATING LATEX
(formerly Darex Latex C)

HERE'S
PROOF!



Here's the answer to lower viscosity coating! With FLOTROL C you can formulate safely with a much higher solids content—yet keep viscosity way down. What's more, you get faster coating . . . quicker, more economical drying as well.

Use FLOTROL C in high solids formulations for high shear coaters like transfer roll and trailing blade. Use FLOTROL C in low solids formulations for air knife and reverse roll coaters, too.

Either way, the low pattern characteristics of FLOTROL C mean smoother, more uniform coatings—plus a high degree of gloss with less calendering.

To get the full story, write to us, attention Organic Chemicals Sales, at the address below.

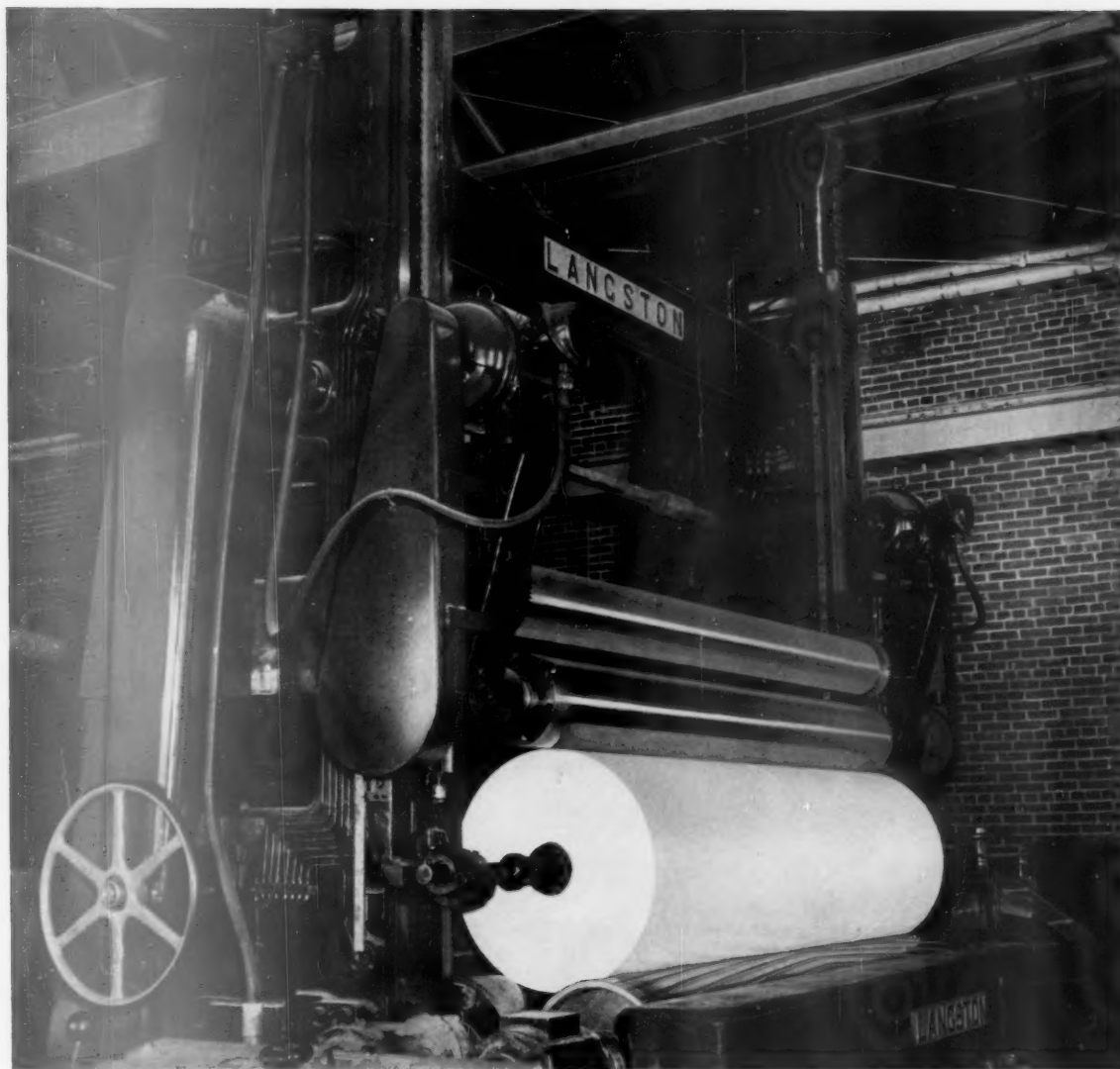
CHECK THESE 5 BIG ADVANTAGES OF FORMULATING WITH FLOTROL C

GRAPH OFFERS SOLID EVIDENCE that FLOTROL C gives lower coating viscosity. Viscosity reduction can be achieved in a wide variety of formulations—including casein, soya protein and starch—and with widely varied latex content. Consistently lower viscosity of FLOTROL C colors at high solids means better all-round results . . . saves drying time, too.

■ higher solids content for faster coating, heavier coating weights, less heat for drying ■ lower pattern for smoother, more uniform coverage ■ cuts amount of expensive ingredients needed to achieve desired fluidity ■ permits achievement of desired viscosity with less latex ■ means faster screening and preparation of coating color

W. R. GRACE & CO.
DEWEY AND ALMY CHEMICAL DIVISION
Cambridge 40, Massachusetts





Langston Slitter and Winder features precision roll density control

Here's a way for you to get uniform roll density from the core to the outside. This type "DH" Slitter and Winder features hydraulic rider roll control that automatically adds or subtracts rider roll weight.

This arrangement makes it possible to constantly maintain correct nip pressure to compensate for the changing diameter and weight of the rewound roll. A simple valve permits setting the correct rider roll

weight for various grades and basis weights of both paper and board.

Pushbuttons for raising and lowering the rider roll during threadup replace complicated chains, sprockets, and bulky counterweights, thus speeding up production by reducing setup time.

Learn more. Write SAMUEL M. LANGSTON CO., 6th & Jefferson Sts., Camden 4, N.J.



LANGSTON

Leadership...by design



New Trona[®] tank car fleet speeds sodium chlorate service

Custom-built for American Potash & Chemical Corporation, a new and thoroughly modern fleet of tank cars is being added to better serve Sodium Chlorate users from coast-to-coast.

Designed to carry bulk NaClO_3 , the cars are being equipped with a specially engineered system for unloading that saves both manpower *and* hours. A protective lining maintains product purity. The new design also stresses easy accessibility, increased safety and convenience.

*Watch for these new tank cars—reflecting the quality
of Trona chemicals and service—modern to the minute.*

American Potash & Chemical Corporation

3000 WEST SIXTH STREET, LOS ANGELES 54, CALIFORNIA

99 Park Avenue, New York 16, New York

SAN FRANCISCO; CHICAGO; PORTLAND (OREGON); SHREVEPORT; ATLANTA; COLUMBUS (OHIO)

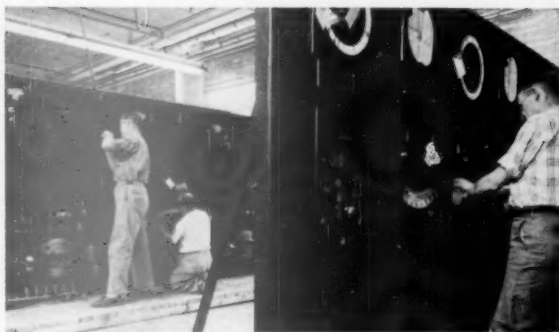


Honeywell gives you the most for your instrumentation dollar . . .

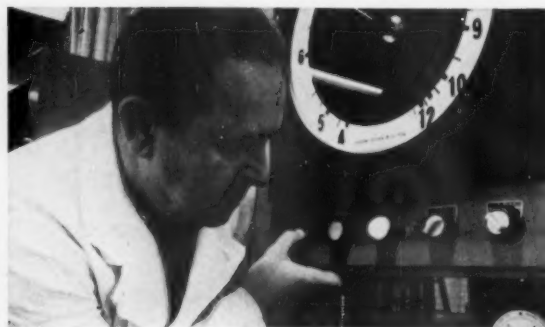
BECAUSE YOUR COMPLETE
MILL INSTRUMENTATION CAN BE INSTALLED
BY THOSE WHO KNOW IT BEST



1. No "Will it work?" Worries. We custom design control systems for a single process or for your entire mill. This means instrumentation that is matched to your processes and will do the job you want it to do.



2. No Pre-Installation Problems. We carefully co-ordinate materials and labor; ship panels prewired and piped, ready to install. No need to recruit, relocate, or reassign personnel.



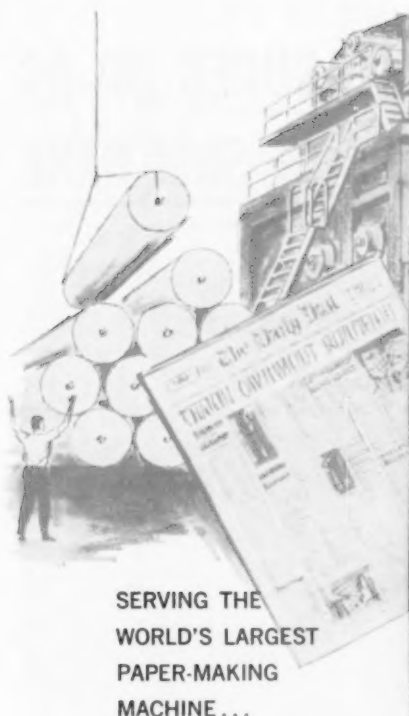
3. No Installation Headaches. We will contract to completely install instrumentation. Honeywell technicians will perform the prestart-up check out and deliver an operating control system to you. You get installation plus peak performance from your control system in the least possible time.

Honeywell offers you far more than just instruments. You can get all or any part of these time and money-savers. Add to these services our many years of engineering and application know-how. You'll see why Honeywell is your best buy in pulp and paper instrumentation, whether you deal directly with us or through your consultant or contractor.

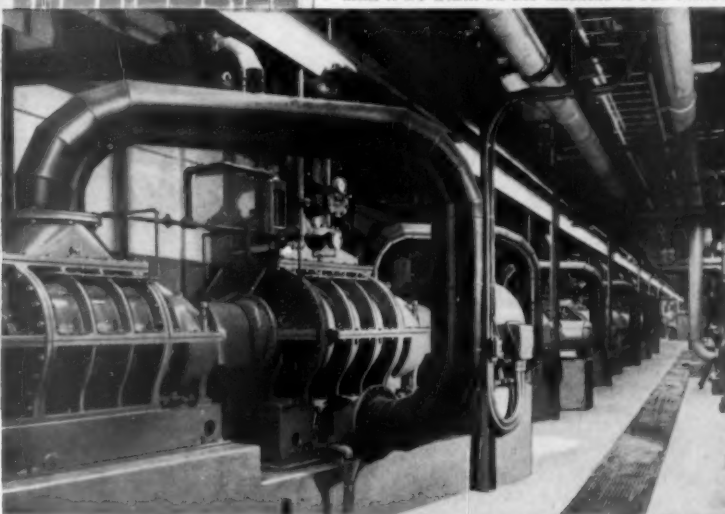
Honeywell
First in Control
H HONEYWELL SINCE 1885



4. No Unscheduled Downtime. We can provide periodic maintenance by experienced service engineers—a big help in eliminating unscheduled downtime. Your instrument technicians are welcome at our Instrumentation Education Center in Philadelphia, where they receive free, expert training in the operation and maintenance of our products.



SERVING THE
WORLD'S LARGEST
PAPER-MAKING
MACHINE...



These Roots RCV2 Vacuum Blowers serve the huge Black-Clawson newsprint machine at Great Lakes Paper Company's Ft. William, Ontario, mill. Wire width on the machine is 342 inches.

ROOTS VACUUM BLOWERS HELP MEET DEADLINES IN NEWSPRINT PRODUCTION

At a 2,250-feet-per-minute clip, the biggest paper-making machine in the world is reeling off newsprint for Great Lakes Paper Company... aided by dependable and efficient Roots Vacuum Blowers. The giant machine, called Jupiter, is in the paper company's mill at Ft. William, Ontario. The Roots units are RCV2 vacuum blowers, each rated at 250 bhp and with capacities of 5,360 cfm.

Five important operating factors contributed to Great Lakes' choice of the Roots Vacuum Blowers:

- Reduced horsepower at high speeds provides power savings of as much as 25%.
- The minute, carefully controlled clearance between rotors and case eliminates wear and lengthens service life.
- Minimum sealing water requirements provides further economy.
- Small floor space and foundation requirements, plus easy installation.
- Roots-Connersville provides a wide range of

sizes—in both single-stage and two-stage units—to match paper mill requirements.

Such factors as these—plus a century-old Roots-Connersville tradition for proved design, precise craftsmanship and technical assistance before and after purchase—have made Roots equipment a proven choice throughout the paper industry. For example: Roots Vacuum Blowers provide all vacuum requirements for the world's widest Yankee tissue machine in the Crown-Zellerbach Company plant at St. Helen's, Oregon, and for the world's largest and fastest coated paper machine in the St. Francisville Paper Company's Louisiana mill.

Whatever your vacuum requirements, think first of the company first in the field. Call your Roots-Connersville field engineer for details. Or write for free Bulletin VP-158.

If you have other air and gas handling requirements remember, too, that only Roots-Connersville provides a full selection of rotary positive, centrifugal and Spiraxial® equipment designs.

FIRST IN THE FIELD OF AIR AND GAS HANDLING EQUIPMENT



ROOTS-CONNSVILLE BLOWER

DIVISION OF DRESSER INDUSTRIES, INC.

260 Willow Avenue, Connersville, Indiana. In Canada—629 Adelaide St., W., Toronto



By every standard... **WEST END** MEASURES UP AS
THE QUALIFIED SUPPLIER OF SALT CAKE

• ACCURATE
PROCESSING
OF ORDERS

• UNIFORMLY
HIGH QUALITY

• ABUNDANT
STORAGE

• FLEXIBLE AND
EFFICIENT
LOADING AND
SHIPPING

• EXTENSIVE
PRODUCTION
CAPACITY

• VAST NATURAL
SOURCE OF
RAW MATERIAL

• ALL COMMIT-
MENTS SCRUP-
ULOUSLY MET

• FRIENDLY, HELP-
FUL ATTENTION
TO INDIVIDUAL
NEEDS

• PROMPT,
AUTHORITATIVE
ANSWER TO
EVERY INQUIRY

However you view
your needs, you will
find in West End a
unique coordination of
specialized services,
extensive production
facilities and product
excellence essential
to the prompt, effi-
cient handling of indi-
vidual requirements.

*Prompt, accurate
processing of orders
to last detail*



Your requirements as to shipping dates, routing,
acknowledgements, advices, scheduling and
product specifications are relayed by private
wire teletype from the Oakland Sales Office
to the responsible plant personnel who see
that orders are filled exactly as written.



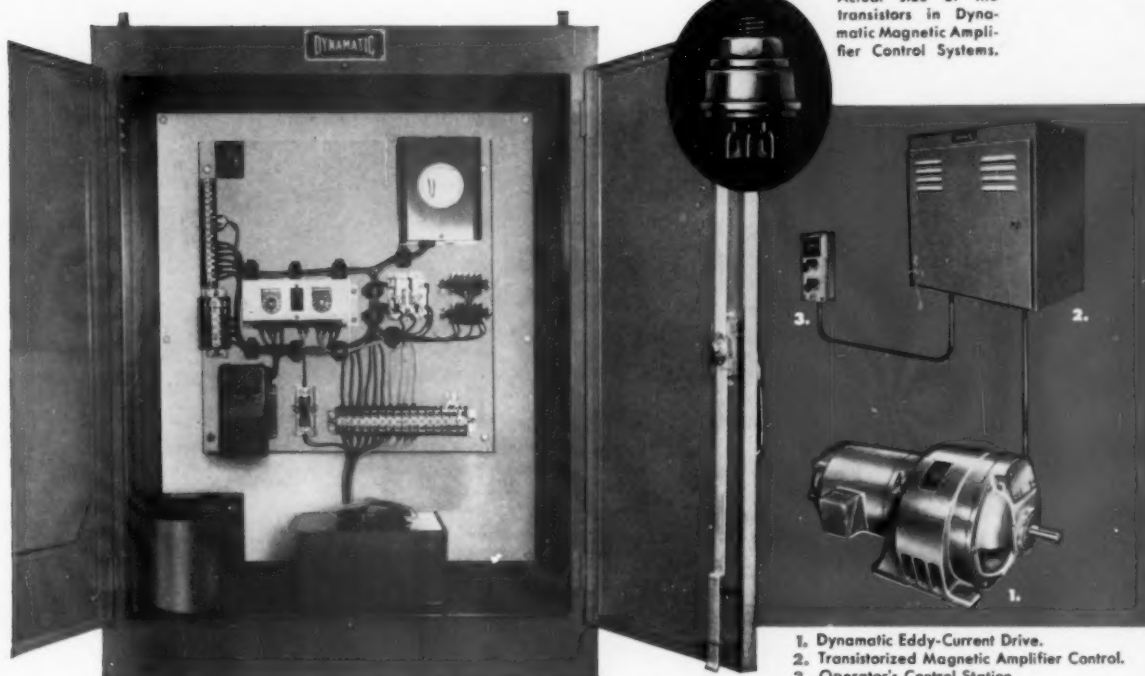
WEST END CHEMICAL COMPANY • DIVISION OF STAUFFER CHEMICAL COMPANY
1956 WEBSTER STREET, OAKLAND 12, CALIF. • PLANT: WESTEND, CALIF.

NEW RELIABILITY!

DYNAMATIC

MAGNETIC AMPLIFIER (TRANSISTORIZED) CONTROL SYSTEMS

for Eddy-Current Rotating Equipment



DYNAMATIC Transistorized Magnetic Amplifier Control Systems are based on a new principle using rugged electrical components designed to provide many times the life of components used in electronic speed control systems. Transistors, reactors, and silicon rectifiers take the place of vacuum tubes; there are no wearing parts to require maintenance, adjustment, or replacement. These transistorized controls are ideal for installation in remote areas and for unattended operation.

Used in combination with Dynamatic Eddy-Current Drives, Transistorized Magnetic Amplifier Controls provide infinite speed adjustment and accurate control

for almost any application from five through 10,000 horsepower. Three essential components—drive, push-button station, and magnetic amplifier control—make up the Dynamatic Drive Package, which operates on alternating current. Standard control features include constant speed regulation, infinite speed adjustment, on-off clutch control, and jogging. Special features may be easily added to standard controls to meet the requirements of individual applications.

Dynamatic Transistorized Magnetic Amplifier Control Systems provide a high degree of accuracy and versatility—and are practically maintenance-free.

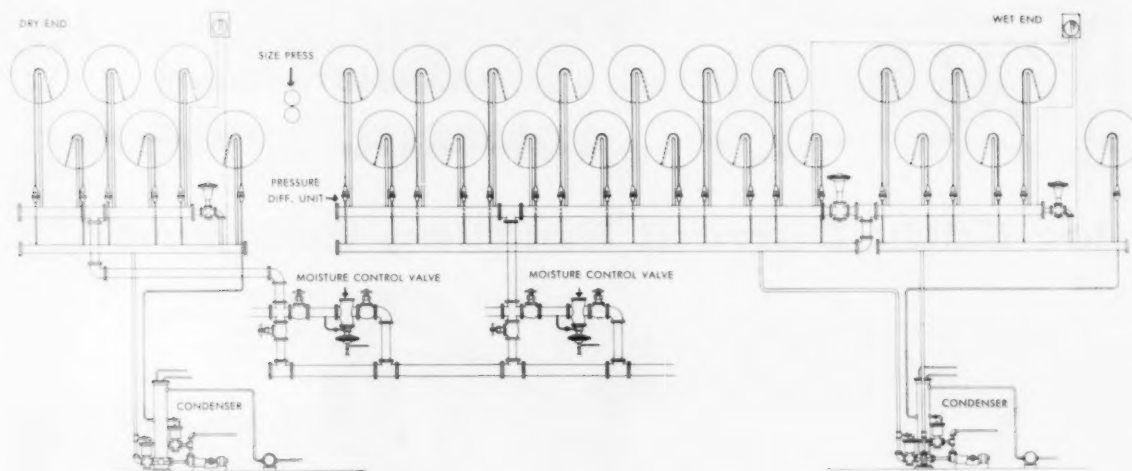


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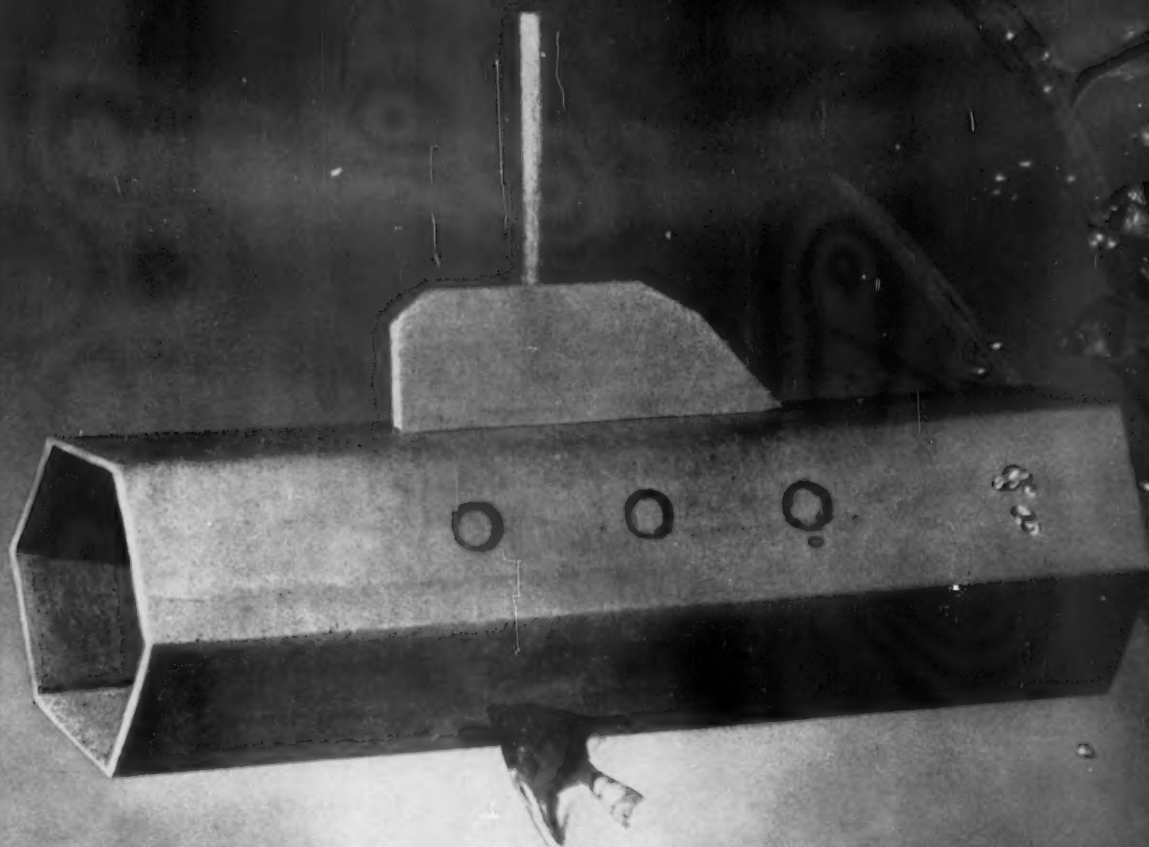
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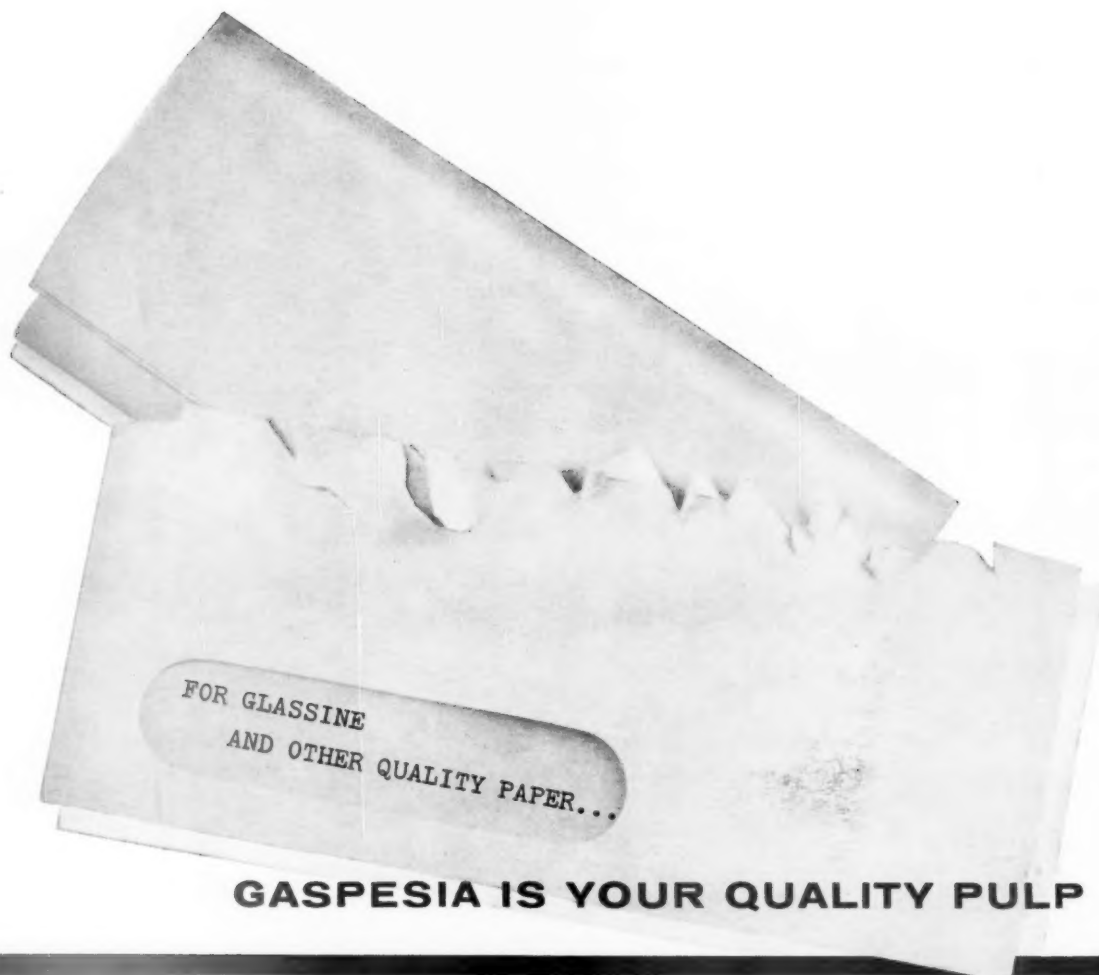


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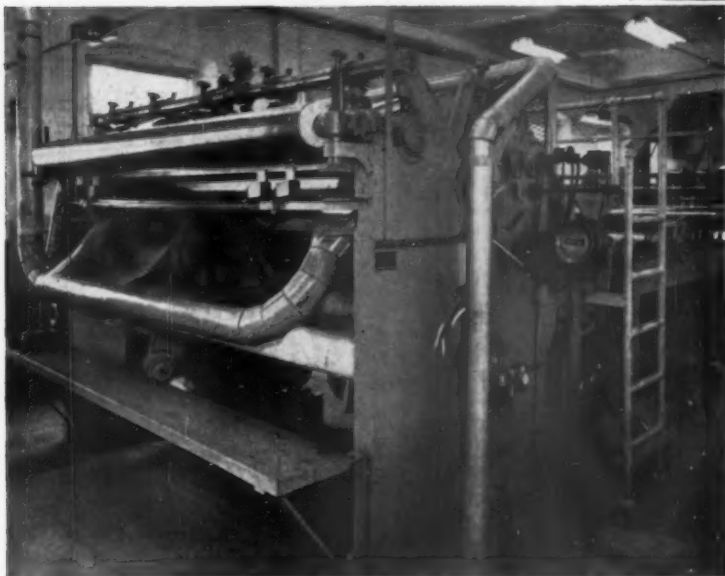
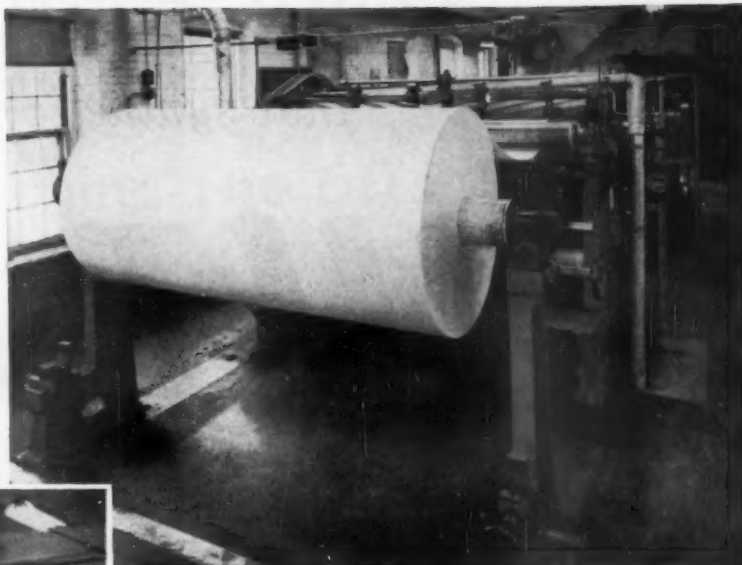
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Paper Week: Searching The 60's

The new decade will be viewed at New York sessions from all angles:
Technical, management, production, merchandising

● In its first Paper Week of the Sixties, the pulp and paper industry will meet in an aura of optimism. Business in 1959 was good and 1960 appears to be better. The industry produced an estimated record 34 million tons of paper and paperboard in 1959 operating at 93% of capacity. It will probably produce between 35 and 36 million tons in 1960.

Because 1960 marks the beginning of a new decade, the industry will, as far as it is able, assess its prospects for the next ten years. To cope with economic ups and downs which may be ahead, the industry must be as fully informed as possible on technical, production, raw materials and management problems.

Searching the Sixties will be the theme of the American Paper & Pulp Assn. and its 20 federated associations, meeting in the Waldorf Astoria in New York, Feb. 21-25. It will also be the theme of the APPA's Open Industry meeting which will climax Paper Week on Thursday, Feb. 25.

At this meeting, APPA President John R. Kimberly, chairman of the board, Kimberly-Clark Corp., will deliver a report on the industry's status. There will follow a three-pronged look at what the decade holds in respect to raw materials, research and technology and merchandising. Richard E. McArdle, chief forester, United States Forest Service, will handle the raw materials phase. Dr. Alfred Nissan, department of chemical engineering, Rensselaer Polytechnic Institute, will discuss manufacturing, research and technology. C. L. Van Dearbogart, president, Alling & Cory Co., Rochester, N.Y., will discuss merchandising.

The Export Picture

The APPA's Export Committee which has long studied potentials for U.S. pulp and paper products in world markets, will discuss world trade. Eugene J. Cooney, manager, Import Committee of the American Paper In-

dustry, will discuss the monetary aspects of the European Common Market. Eric Lagerloef, secretary of the Export Committee, will summarize developments in the Soviet Union's pulp and paper industry. There will be a third speaker on other trade areas of the world outside of the European Common Market.

APPA's Materials Committee will theme materials management.

APA Switches Hotels

For the first time, the American Pulpwood Assn. (see Pulpwood Section in this issue) will hold its meetings in the not-as-hectic atmosphere of the Roosevelt Hotel. Of special interest to all will be its Monday evening Forest Policy Forum which will discuss the international implications of the Herty Foundation—developed Noralyn process using 100% hardwoods for newsprint. This promises to be a good session.

TAPPI's 45th Meeting

More than 3000 papermakers and allied industry executives will attend TAPPI's 29 technical sessions and nearly 60 committee meetings in the Commodore Hotel Feb. 21 to 25. Probably one of the best attended and hottest sessions will be the panel discussion of the microbiological committee on the position of toxicants under the new food and drug amendments. Dr. A. N. Stern, who moved from West Virginia Pulp and Paper Co.'s Covington, Va. research lab to Washington, D.C. to open an office as head of microbiological research for West Virginia will be chairman.

Paper Week Coverage

Don Zeigler, Bill Diehl and Maury Castagne, respectively Midwestern, Southern and Eastern editors, will converge on Manhattan's midsection in late February to assist Editor Al Wilson in covering the multi-ring Paper Week events.

Under the "sounds interesting" heading comes: "A Search For New Fiber Crops," by the Northern Utilization Research and Development Div., USDA; "Dielectric Heating for Drying Wood Fiberboard," by D. C. Carter, Johns-Manville Corp; "Dissolving Pulp from Domestic Timber Bamboo," by T. F. Clark of the Northern Utilization Research and Development Div.; and "Heat Transfer and Water Removal in Cylinder Drying—Part I Unfelted Cylinders," by A. H. Nissan and D. Hansen, Rensselaer Polytechnic Institute.

Corrosion Problems

Ed W. Hopper, Pittsburgh metallurgist and corrosion consultant, will again chairman a corrosion session and judging from the interest displayed at Pittsburgh TAPPI Engineering session, this will be lively and controversial. Scheduled for discussion: Overlay installation and corrosion in alkaline digesters; neutral sulfite and alkaline pulping corrosion problems, costs of corrosion in the industry; and stainless steel in acid sulfite service.

The latest information on three sulfite recovery systems will be reported. These will be: Magnetite pulping and MgO base recovery by Dr. George H. Tomlinson II, Howard Smith Paper Mills; atomized suspension technique by W. H. Gauvin, Pulp and Paper Research Institute, and the Sivola process by E. H. Kennedy of Combustion Engineering.

Three sodium base recovery systems will also get an airing: The Western Precipitation process by Robert W. Boyer of Western Precipitation Corp.; The Mead process by W. J. Darmstadt, Babcock & Wilcox; and the Stora Kopparberg process by T. O. Wentworth, Chemical Processes, Inc.

Shell Development Co. will reveal some of the results of its slimicide, Acrolein, which has been mill-tested at West Virginia Pulp and Paper Co.'s Covington, Va. mill.

A new process for hardwood pulp-

ing will be discussed by H. L. Crosby and N. N. Coe of Dorr-Oliver, Inc. E. R. Gremler of The Black-Clawson Co. will talk about low power cold soda pulping, and D. A. Feigley and M. J. Showalter, Armstrong Cork Co.,

will discuss steam cooking of northern hardwoods.

Every once in a while interest is revived in nitric acid pulping. It seems to run in cycles. The last was in 1954 when the French Delbay process was

hot. Now, extensive and intensive lab work has been done on an integrated nitric acid pulping process by D. L. Brink, U. of California, and this work will be discussed during the pulping session.

Dr. Louis E. Wise Wins TAPPI's Gold Medal



The 1960 TAPPI Medal Award will be awarded to Dr. Louis E. Wise, Institute of Paper Chemistry, at the

45th Annual Meeting in New York, Feb. 22-25.

Louis Elsberg Wise was born Jan. 29, 1888 in New York City. He graduated in 1907 with an A.B. degree from Columbia University and in 1911 the ph.d degree was conferred upon him. His interest in teaching proved to be more compelling than his first job in varnish-making and he returned to Columbia University in 1912 as an instructor in biochemistry and later he became an instructor in chemistry at the University of Missouri. He was a biochemist with the Department of Agriculture and during World War I

a research chemist with the Bureau of Aircraft Production. In 1919 he was appointed professor and head of the department of forest chemistry at New York State College of Forestry at Syracuse. He was instrumental in activating the Department of Pulp and Papermaking there with Clarence E. Libby, and contributed much to the development of this department.

Illness suddenly forced his retirement in 1932, but he taught in Florida. In 1941, Professor Wise became research associate at the Institute of Paper Chemistry. In 1957 he was made senior research associate.

Dr. Wise has published more than 127 papers and books.

Modified Papermaking Process Produces A New Textile, Opens Up New Frontiers

● C. H. Dexter & Sons, Inc., Windsor Locks, Conn., working with DuPont Co., has made a breakthrough in the application of papermaking technology to produce unspun textile fibers. Initial market for the new product, Dextex, is interlining in men's wash and wear suits with other potential products looming, such as shirts and women's garments.

An examination of PULP & PAPER of Dextex shows that there is no set fiber pattern and that apparently the fabric is made on some type of former. But David L. Coffin, president, says the sheet is not produced on a Fourdrinier nor a Rotoformer, although the company reportedly has the latter in its mill.

As yet no details on equipment used is available pending patent applications and equipment modifications. Mr. Coffin does say the Dacron fibers are mixed in thoroughly purified water and diluted stock is fed through minutely controlled channels to a fine wire mesh.

Significance of Dextex

There has been much talk in the past year about non-woven textiles produced on a paper machine. Dexter



David L. Coffin

Dexter D. Coffin

OFFICERS: David L. Coffin, 34, is president of C. H. Dexter & Sons, Inc. About a year ago he succeeded Dexter D. Coffin, now chairman.

says its product is neither woven nor non-woven and is seeking a suitable generic name.

At least two other paper companies, Kimberly-Clark Corp. (Kaycell), and Scott Paper Co. (Duraweve), have invaded the textile field. The difference is that Dextex is a 100% synthetic fiber. Kaycell and Duraweve are paper fibers with nylon or rayon scrim.

Now that Dexter has proven the feasibility of making textile fabrics without paper fibers, similar breakthroughs may loom on the horizon from other paper companies.

No Surprise

That Dexter has come up with such a new development is no surprise to the industry. Since 1928 the company's production has been mainly based on long-fibered papers such as those used for teabags (Dexter says it is the largest manufacturer of this product), filters, etc., always on the borderline of fabrics. Explains President Coffin, "These are generally soft, pliable, lint free, highly porous materials varying from fabrics only in that they are made on the continuous sheet process instead of a loom or carding machine."

Interlinings are used in men's suits where support, resiliency, shape retention and contour are important. Dextex weighs 2.5 ounces per square yard vs. 5.5 to 6 ounces for most other cloth linings. The fact that Dextex can be produced on high speed automatic equipment contributes to its uniformity, availability in many widths, flexibility in providing any length piece

On Eve of Paper Week, Sound Practices In Woodpulp Markets Are Advocated

As pulp buyers and producers will soon be gathering in the Waldorf-Astoria for their annual Paper Week meetings (Feb. 21-25), the prime subject for discussion will be market trends. In both camps, leaders advise PULP & PAPER that the overall picture is improving, but there will still be overcapacity for some time to come yet.

In this connection, the Association of Pulp Consumers, through its executive secretary, Reed R. Porter, has expressed its position on marketing practices, as follows:

Marketing Practices

"We have urged sound marketing practices on the part of both the sup-

plier and consumer, a permissible and desirable association function. Such practices include: loyalty to each other; understanding of each others' problems; and the need for relative stability of prices if both supplier and consumer are to remain financially healthy in this age of intense competition, high taxes and labor costs, and heavy capital investment in plant and facilities.

Avoid Warfare

"We believe that only by adopting these principles can the industry avoid jungle warfare and the trying experiences of the 1930's or the early 1950's. Other industries have proved in practice that these principles are sound and healthy; our industry has fared

relatively well during the current overcapacity cycle."

Recent reports (not appearing in PULP & PAPER) were said to have misstated the Consumers' position.

World Market Pulp

There will be special emphasis on the world market pulp situation when Mr. Porter makes his annual report. He will emphasize the tremendous growth in European pulp demand in contrast to virtually none in North America (there has been a slight growth in Canada). He will also talk about the apparent determination of Scandinavia to supply the major share of the European and some other world markets.

Mr. Porter is expected to tell his members that of the 518,000 tons of growth in world paper grades market pulp consumption for the first nine months of 1959, Sweden and Finland together supplied 61% (Sweden, 44% and Finland 17%).

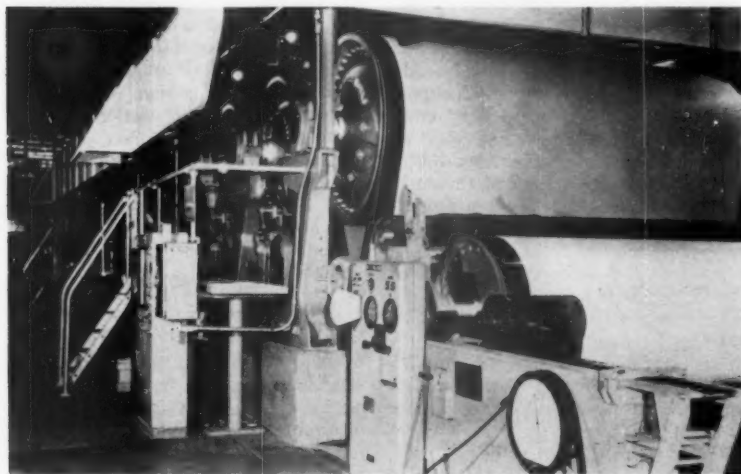
and low cost, Dextex has good resiliency and crease-recovery, high porosity and "breathability," high strength and can be easily cut and sewn.

Ninety suits with Dextex interlinings were made by three nationally known cutters of suits who reported Dextex is easy to work with. The suits were worn, washed, dry cleaned, pressed and showed good drape and shape retention.

C. H. Dexter & Sons, Inc. is 192 years old with family management over seven generations. It is among

the 10 oldest continuously operating U.S. companies. Paper products range from tea bags to electrolytic capacitors, including oil and air filters, meat casings, mimeograph stencil backings, tapes, hospital bed pads and face masks, lens tissue, silver wrap and vacuum cleaner bags.

A subsidiary, Dexter's first, Standard Insulation Co., Inc., East Rutherford, N.J., produces closure liners of laminated papers, films and foils for packaging and impregnated glass cloth for plastics.



TEXTILE FIBERS ARE CONVENTIONALLY DRIED at C. H. Dexter & Sons, Inc. on this dryer section. Wet end section is a "modified papermaking" operation. At right is Sandy Hill Iron & Brass Works' Rola-Reel.

CANADA: Six New Pulp Mills Listed in Study Stage

Vancouver, B. C. . . . At least six pulp mills are in the study stage in British Columbia, according to the provincial government, which has just completed a survey of its forest resources. They are listed as:

1. At Prince George, by Northern Spruce Co.
2. At Keremeos, where John Luttin has been discussing a pulp project for some time.
3. At Kitimat, where Powell River Co. has been planning a mill in co-operation with Aluminum Co. of Canada.
4. In the Peace River country, where Axel Wenner-Gren, Swedish financier, and associates may soon embark on a \$500,000,000 power enterprise.
5. Union Bay, Vancouver Island's east coast, where Canadian Collieries, now operating two large sawmills on the mainland, has tentatively chosen a site.
6. Gold River, west coast of Vancouver Island, to utilize timber on the East Asiatic Co.'s Tahsis Co. stands.

All these locations and projects have been talked about in the past. Two or three are regarded as only remote possibilities for early action.

The report issued by the bureau of economics and statistics maintains that British Columbia could cut three times the present amount without jeopardizing the forest.

Challenging Sixties — Part 2

Resiliency is strong point

Simplicity to counteract costs

Pulping faces vital decade

Paperboard slates big increase

Coating's major upheavals

Efficiency in finishing

Research pace to be quickened

Industry's "real awakening"

● **The Challenge:** Golden or not, the Sixties will be a challenge to the industry. The challenge: to be prepared for the worst—or the best. There are no professed soothsayers on the staffs of paper companies, nor are crystal balls among top management's accoutrements.

The industry must be versatile enough to roll with economic punches. Fortunately, it does have some resiliency. If demand sags, it can operate profitably, say some, in the 80% to 85% capacity range. Conversely, it can meet a certain amount of increased demand for its products since its historical or normal capacity is based upon a 313-day operating rate; while its all-out basis is the maximum that can theoretically be produced in any year, with allowance only for annual repair down-time and restrictions in union contracts.

It is difficult for economists to attempt to estimate what the future holds without appraising the beneficial potentials of growing world trade and increased interest in free trade areas. Any such estimates must be based on "ifs." If world trade continues to grow, if world per capita demand suddenly shoots up as well it should, since it is so long overdue.

It is difficult to ignore the tremendous potentials and possibilities latent in world trade. It is almost impossible to ignore the growing and impatient desire on the part of many peoples to catch up with the rest of the world. A golden age has been long sought, long awaited and long overdue.

World Industry Outlook

World demand for the industry's products is estimated to increase from 56,090,000 metric tons in 1955 to 88,000,000 in 1965 and to 134,000,000 by 1975, according to estimates of the FAO.

International trade in pulp and paper is close to \$3 billion, 3% of world total, and compares with the

less than 5% for iron and steel, 10% for all fuels and 16% for food. World capacity is being increased at an average annual cost of \$1 billion.

By 1965 world capacity is expected to reach 73,960,000 metric tons of paper pulp (34,970,000 tons for North

America); total paper and paperboard 91,180,000 tons (up from 73,799,000 in 1958).

The Western Hemisphere is better than a \$150 million market for U.S.A. pulp and paper exports, while Western Europe is about \$100 million.

Population, Profits and the Future

Population is the key to America's future. From 179 million people in 1959 to 180 million by mid-1960, U.S. population is expected to rise 1% per year to 191 million by 1964, 208 million by 1970, and 231 million by 1975.

Per capita paper consumption may go from 435 lbs. per person in 1959 to 500 lbs. per person by 1970. Consumption will be about 50 million tons by 1970 if net imports remain at 5 million tons per year.

There is enough capacity to take care of the next few years' demand but not enough for 1970. If per capita paper consumption in 1970 should be 450 instead of 500 lbs., we will need 43 million tons domestic production.

In 1959 the industry had a capacity of 38 million tons, which rose to 38.7 million tons by the beginning of 1960 and will rise to 39 million by the end of 1960. This will be enough capacity, say some, to take care of 1965 at 450 lbs. per person.

The Profit Picture

After ten years of modernization and installation of new plant capacity, the industry faces the Sixties with 90% new equipment, according to one estimate. To do this it has invested more than \$5,655,000,000.

But in those ten years the cost of new equipment, new plants and machines has risen substantially. So, too, has labor. Sales of paper and allied products climbed from \$4.86 billion

in 1949 to \$10.66 billion in 1958, while net profit in relation to sales slid from 7.5% to 4.7%. A modest profit increase is predicted for 1959.

Assets of the pulp, paper and allied industries are \$8.83 billion (1958) with net sales of \$10.26 billion; net worth is \$6.09 billion.

Increased Outside Competition

Some 28 to 30 years ago paper companies were competing only against each other. In the Fifties competition increased from other industries such as wood, glass, aluminum and plastics. This is a challenge of the Sixties. The paper industry must seek out new markets. It cannot expect to hold markets in which it does not belong (where other materials do a better job).

There are some in the industry who see the benefits of paper in cooperation with such materials as plastics and aluminum. In combination, these materials can go where no one can make it alone.

Mill of the Future

What will be the mill of the Sixties? The most burning question, says one chief engineer, is how to reduce capital costs of new mills. Simplicity of arrangement is a must. There must not be wasted movement of materials, no backtracking in the process flow.

New materials of construction will be needed to reduce costs of building.

It is estimated that the cost of

Pulp-Paper's Era of New Ideas

building a new integrated pulp and paper mill is between \$100,000 and \$125,000 per daily ton of capacity. About \$65,000 to \$75,000 is for ma-

chines, equipment and plant buildings, the rest for forest lands. A new high-speed paper machine, without accessories, is about \$4 million.

What to Expect of Pulping in the 60s

In the Fifties kraft pulping—especially bleached kraft—came into its own. Bleached kraft pulp in 1949 totaled 1,118,282 tons, had skyrocketed to 4,067,371 in 1958. Unbleached kraft production in 1949 was 5,708,567 tons and climbed to 7,647,099 in 1958. Semi-bleached went from 359,917 to 601,978.

Ability to recover cooking chemicals with a minimum of stream pollution, plus ability to produce a strong fiber from hardwoods or softwoods, accounts for kraft pulp's popularity. Capacity for North America in 1959 was about 17,823,000 tons, which includes 6,629,000 tons of bleached, 737,000 of semi-bleached and 10,457,000 of unbleached.

Considerable efforts have been made to minimize odor. But kraft pulp recently suffered a setback that some proponents of sulfite pulping see as a gain. In California, after the state had approved a kraft pulp mill, local townspeople rejected it because of the odor.

Despite progress made in masking the odor, kraft has been discarded as a possibility in several areas where other industries were established, or where the odor problem would interfere with tourist business. (In West Germany, the tourist trade has been the influencing factor in the lack of kraft pulp production.)

But in communities that recognize the contributions of a kraft mill to the economy of the area, the odor is called the smell of prosperity. As one

Southern mill man remarks, "That's the smell of bread and butter."

Odor-control is the area where kraft people must do more work. There are some regions where there are no teeth to air pollution laws; but, says one observer, there will be.

Sulfite Breakthroughs

"The death knell has been sounded by many, but the patient refuses to die." In 1945, at the time this statement was published in PULP & PAPER, sulfite pulp production—bleached and unbleached—was 2,159,895 tons. In 1958 it was 2,381,461 tons.

There are no major increases in sulfite pulp production or capacity contemplated for the next few years, with capacity remaining at 3,012,000 tons. But, breakthrough in Magnefite pulping, MgO recovery systems and the high-yield sulfite pulping trend in Canada may change the picture.

Semichemical Trend to Fine Paper

Slowly and steadily, semichemical pulp production has been growing. From 506,226 tons in 1949, U.S. production increased to 1,622,028 in 1958. Biggest concentration of mills is in the South (more than 20) and the Lake States (about 15). Present capacity is 2,295,000 tons and slated to rise to 2,345,000 in 1960.

The trend in semichemical pulp production appears to be to fine paper pulps.

Although NSSC pulping has had

its biggest growth in the South, significant breakthroughs in the coniferous-scarce Northeast may precipitate growth in that area. For mills that have adopted and adapted NSSC pulping, it has meant growth. Now that a good grade fine paper pulp can be produced by NSSC pulping, softwood-scarce sections may see a more pronounced trend toward hardwood semichemical pulp production.

High-yield sulfite pulping that several Canadian mills have adopted is actually a modified NSSC-sulfite cook, says one expert. Of six mills that reported on yields, one had a high of 70%, others from 65% to 68%.

The patented Chemigroundwood process, put into commercial operation in 1954, is producing satisfactory pulp. In this process whole logs are cooked in a mild caustic liquor and then defibered in regular grinders. Actually, grinding is said to be picking-off of the fiber, and low horsepower requirements are one advantage. There is a similar system in France, and a leading Japanese pulp and paper maker reports building of a Chemigroundwood mill for mid-1960 startup.

Bleaching: Continued Boom

The trend to super white pulps and papers was pronounced in the Fifties and will continue in the Sixties. Fluorescent whitening agents have been introduced to papermakers.

The super white pulps, say some mill men, were selling gimmicks, about as necessary as the high fishtail fins on a car. But, notwithstanding, the mills added additional bleaching stages with many adding a stage or two of chlorine dioxide.

Bleached pulps totaled 2,887,916 tons in 1949—1,454,971 tons sulfite and 1,432,945 tons sulfate. This skyrocketed to 7,983,877 tons in 1958, including 1,849,206 sulfite, 4,067,371 sulfate and 2,067,300 semichemical.

BY THE EDITORS

This comprehensive report on what the new decade has in store for pulp, paper and paperboard was compiled in interviews in all parts of the country. PULP & PAPER, which is the only magazine in this industry with resident full-time editors in every major region where pulp and paper is made—Northeast, South, Lake States, Pacific Coast and Canada—interviewed presidents, engineers, technicians, machinetenders, etc. Here is what they foresee.

CHALLENGE OF THE SIXTIES

Paperboard Will Add Machines, Capacity

Paperboard in the Sixties is expected to keep rolling along, says the National Paperboard Assn. It is expected to better its historical annual growth rate of 2% and climb to 3.7% for the long term.

Operating at 93% of capacity in 1959, the industry produced some 15,599,458 tons by Dec. 19 and was expected to reach the 16,000,000 mark at year end. Demand is expected to climb to 16,200,000 tons in 1960, 16,900,000 in 1961, 17,600,000 in 1962, 18,400,000 in 1963, 19,200,000 in 1964, 20,100,000 in 1965, 23,600,000 in 1970 and by 1975

something like 28,100,000 tons.

With a capacity of 16,877,000 tons at the end of 1958, paperboard has climbed to 17,211,000 and has slated capacity increases to 17,989,000 tons for 1960, 18,866,000 for 1961 and 19,158,000 by the end of 1962 (313-days basis).

New machines (18) will add 1,560,000 tons of new capacity; eleven of these will be for container board, six for boxboard. They will be added: One in 1959, seven in 1960, seven in 1961 and three in 1962. From 1958 to 1962 a total of some 2,281,000 tons will be added.

will be on-machine except some small specialty tonnage. Experts favor on-machine coating where substantial machine time will be on one grade and weight and where a new installation is involved. It is predicted that within ten years all trailing blade coating will be on the machine.

Basic Stock

Never tackle coating, on- or off-machine, says one coating expert, unless the base stock has been established. Most important thing, he says, in coating is a uniform profile of base stock. In other words, good coating goes back to good papermaking.

High-Velocity Drying

Development of high-velocity, high-temperature drying will find greater acceptance in coating to accomplish drying with: (1) low capital investment, (2) space economies and (3) high speeds.

Trailing Blade Coater

From one installation in the late 40s into the 50s, the trailing blade coater blazed a fabulous trail across the coating firmament, until by 1960 there are approximately 100 coaters either in operation or on order the world over.

The trailing blade unit is a quality step up. "I believe we can prove," says one expert, "that what we expected with the trailing blade has been exceeded." But, there were some problems.

The trailing blade coater held the promise of laying down a smooth, level coating with excellent printability and at high solids. But it took considerable capital investment to

Big Trends Take Spotlight in Coating

Very definitely, major upheavals in coating in the Sixties will involve new processes, techniques, grades and equipment. Machine-coated printing papers, including conversion-coated, totaled 887,371 tons in 1949, 1,020,002 in 1950 and by 1958 had climbed to 1,559,000 (on-machine coating alone, with conversion-coated estimated at another 600,000 tons).

Most dramatic change in coating is the swing to paperboard coating by the big Southern kraft mills. On-machine coating, too, is a big trend

and may be more pronounced in the Sixties. Star of the Fifties was the trailing blade coater, and it will be more so in the Sixties. High-speed coating has been given a boost by the success of high-velocity jet drying.

On-Machine Coating

Because of the heavy capital investment required for off-machine coating, trend may be to on-machine coating, particularly where a new mill or machine is involved. One mill predicts that in the next ten years all coating

World's Expansion Plans in Paper and Paper Pulp

(In thousands of metric tons)

	RATED CAPACITY 1958				ESTIMATE OF FUTURE RATED CAPACITY				
	News-print	Other paper and paper-board	Total paper and paper-board	Paper Pulp	News-print	Other paper and paper-board	Total paper and paper-board	Paper Pulp	Estimated Target Date
North America	8,521	32,533	41,054	33,730	9,200	35,770	44,970	34,970	1961/62
Latin America	150	1,500	1,650	830	560	2,420	2,980	2,240	1964/65
Western Europe	3,910	14,750	18,660	14,750	4,520	17,720	22,240	19,690	1963/65
Africa	—	270	270	175	70	360	430	520	1964/65
Near and Middle East	15	65	80	50	60	360	420	160	"
Far East	700	3,685	4,385	2,700	1,180	4,830	6,010	3,660	"
Oceania	170	400	570	480	240	590	830	630	1964/65
Rest of the World	980	6,150	7,130	6,565	1,930	11,370	13,300	12,090	1965
WORLD TOTAL	14,446	59,353	73,799	59,280	17,760	73,420	91,180	73,960	

Source: FAO, United Nations

HERE'S HOW WORLD PAPER INDUSTRY PLANS to increase its capacity by 1965. Total paper and paperboard will climb from 73,790,000 metric tons to 91,180,000 tons. Paper pulp will rise from 59,280,000 tons to 73,960,000 tons.

prove it. What happened, explains one mill man, is that we broke through the problems and actually saw one blade application after another. We can prove that what we expected with the blade has been delivered. Consistently, people who have been experiencing this quality improvement have encountered heavy capital costs; and before they were able to solve their problems, it took big effect on yield and efficiency. People are finding out that the blade is not as simple as it seems.

An interesting new development is that several companies are talking about putting the blade on the wire side only to improve printability of both wire and felt side.

Better printability of the blade coater is a big factor. One company reports a 30-point boost. Publication grade companies have proved that the blade produces better printability.

The coater is now in the throes of evolution that will continue well into the Sixties. Faster blade changes are here, improved operations and higher coating speeds in the 4,000-fpm range are promised for publication papers, on or off the machine. There will be wider grade applications and new grades established. Where uncoated grades are used today, coated will go tomorrow.

Another promise is that heavier weights, "much heavier," will be made with the trailing blade coater and at higher speeds.

Paperboard Coating

Everybody makes coated paperboard, complains one mill manager, and it's just as competitive as can be.

There is talk of developing coatings for unbleached grades of kraft with such hiding power as to produce a sheet comparable to bleached kraft.

Coated paperboard capacity in 1950 was less than 4,000 tons per day and has climbed to well over 1,000 tons at present. Bleached board coating capacity has risen like a rocket since 1955 and is now about 5,000 tons per day, or about 1,550,000 tons per year on a 310-day basis. Coated filled board capacity in 1960 is about 1,800,000 tons.

Trying to coat on Southern kraft, says one mill man, is like trying to coat blotter stock.

New Types of Coating

Barrier coatings will increase in the Sixties. There are several companies working on barrier coatings using latex, polyethylene, acrylic and synthetic resins. It is a field in which there is much interest.

Adhesives

There is a place for both natural and synthetic adhesives. A continuing increase in the soy bean crop may lower the price as will greater volume of synthetics. Polyvinyl alcohol is an excellent adhesive with good bonding strength using less adhesive. The price is now high. There is possibility of

combining with soya proteins. Synthetics may have a problem with the Federal Food & Drug Administration because of the emulsifier used, especially for coating foodboard. Natural adhesive, being basically a food product, may get a break.

There is also the possibility of seed proteins other than soy, such as sesame seed grown in Mexico. It has many properties that may enhance soy protein.

Here is how one coating expert sums up the situation: The trend in cereal packages is from cylinder machine to Fourdrinier and coated. The appearance alone of bleached board and its sanitary look, plus the possibility of good carton construction with lower costs, will bring bleached board into this field in a big way.

In addition, cups and paper plates will use bleached board. Two big companies are getting into it in a big way.

Regarding packaging, this expert says that eventually everything will be impact buying in supermarkets. If your product is not recognized in two seconds, you're dead. Color will be a big factor. Color television will give a universal recognition and appearance to your package, and color will be just as important if not more so than a trade name.

Upheaval: Refining, Finishing, Broke

Refining has been called the most backward operation in the paper mill, and one authority says it has about a 0.5% efficiency rate. There are trends

that promise to change this: high-density refining (20% to 30%); high-density stock washing (20% to 40%); ultrasonic and pressure refining, and

Estimates of World Paper and Board Demand: 1965 and 1975

REGION	Economic growth rate per capita Percent per year		Newsprint			Other paper and Paperboard			Total paper and board	
	1955-65	1965-75	1955	1965	1975	1955	1965	1975	1955	1975
<i>(In thousands of metric tons)</i>										
1. North America	2.25	2.00	6,351	8,300	10,300	25,171	35,400	47,000	31,522	57,300
2. Latin America	2.50	2.00	495	1,000	1,800	1,327	2,500	4,700	1,822	6,500
3. Western Europe	2.50	2.00	2,648	4,200	6,000	10,505	15,500	21,200	13,153	27,200
4. Eastern Europe	—	—	222	450	900	1,668	3,200	5,700	1,890	6,600
5. U.S.S.R.	—	—	307	850	1,800	2,168	5,300	10,600	2,475	12,400
6. Africa	2.00	2.00	102	190	350	384	700	1,300	486	1,600
7. Near and Middle East	2.00	2.00	31	65	120	108	210	400	139	520
8. Far East (Excl. 9-10)	2.00	2.00	221	430	850	609	1,160	2,300	830	3,100
9. Japan	4.50	4.00	454	950	1,600	1,695	3,600	6,400	2,149	8,000
10. China Mainland	—	—	141	500	1,600	727	2,400	7,200	868	8,800
11. Oceania	2.50	2.00	310	450	600	450	800	1,200	760	1,800
WORLD TOTAL			11,280	17,400	26,000	44,810	70,700	108,000	56,090	134,000

Note: Totals may not add up because of rounding of figures in the World Total.

WORLD DEMAND WILL RISE 57% by 1965 and 139% by 1975 over 1958 according to FAO. North America demand is estimated to increase 38% by 1965 and 75% by 1975.

CHALLENGE OF THE SIXTIES

bleaching in the refiner.

Big advantage in high-density refining is a reduction in power requirements. There is no wasted power on fluid shear, says one mill research director. High-density defibering reduces damage to the fiber, gives a much better quality.

In high-density refining, you can get a strong sheet, good mullen and tensile without reduction in freshness, and at the same time hold tear values. You could upgrade a low-grade pulp to a higher grade. Contact in high-density refining is not metal-to-metal, but the action actually kneads the pulp as it passes through.

The economies of high-density refining are considerable because of the ability to work on the fiber without handling such large amounts of water.

Some experiments are being made on ultrasonic refining; but one source says although it works functionally, it is not economical. Pressure refining has found acceptance in many mills and can be applied to any system with a reasonably steady flow.

There will be a marriage some day, says one research director, between other forms of energy for fiber work, whether it is pulping, refining or fiber development.

Finishing Room of the Sixties

Until a few years ago the finishing room in a paper mill had been neglected and forgotten. "We were operating on 50-year-old techniques," complained one finishing room manager. "Research had been done on everything but the finishing room," he said.

After some prodding, many mills are looking into the problem and are conscious that here is an area for considerable cost reduction. They are learning that it costs 1¢ per lb. to sort paper, that one-third of labor costs is in the finishing room.

As a result, the finishing room, especially in the fine paper mill, is being uplifted. Automation has entered, flows have been streamlined and modern sorting, trimming and conveying equipment installed.

Trimmers in the finishing rooms of tomorrow will be used less and less, says one mill man. More accurate sheeting and piling at the cutter has eliminated the need in many mills for trimming, will eliminate more. There will also be more and more roll printing so that rolls and roll wrapping will be more important.

Broke has long been neglected. Some mills are now upgrading their concept of broke, treating it as a

prime papermaking fiber, which it is. The problem is to keep it uncontaminated, keep dirt out and quality up.

For good papermaking, says one mill, broke is an essential furnish. You can't make paper without broke. It is an excellent pulp, gives less curl in the second making, is well beaten

Research Will Carry Key to the Future

If there should be a golden decade ahead for the paper industry, research may provide the key. The industry is picking up the pace of its efforts and now spends about 1% of its gross sales on research.

But, what work that is being done is by the industry giants and large machinery builders, says one director of research. "You have to be a giant," he says, "to be able to afford research. The small companies can either do cooperative research or sit back and wait until work has been done by the giants. If the machinery builder is part of this group, he will be anxious to sell you the results."

Many important breakthroughs were made by research men in the Fifties but the promise of the Sixties is even more staggering. The surface has just been scratched on non-woven fabrics and the stretchable papers. The field of non-wovens hold tremendous possibilities. Says the editor of one textile publication, "The textile industry envies you in the paper industry. With non-woven you have them quaking in their boots. You have a lion by the

tail and don't know it."

In the Fifties several automatic broke-handling systems were introduced that use electric eye units, conveyors and pulpers to keep the broke separate and convey it uncontaminated to broke chest. Some predict that more and more paper mills, conscious of the costs savings to be effected, will consider broke as a prime quality papermaking fiber and treat it as such.

tail and don't know it."

Take disposable garments. This field of non-woven products is too much beyond the imagination to actually realize its scope. It is definitely past the gimmick stage, and large companies are regularly using disposable paper work clothes in every industry—particularly in atomic energy industry, transportation systems, hospitals, the U.S. Army.

A "for-instance" of how fast the paper clothes field is moving: During Paper Week 1959 paper hats of the space age were modeled as the idea of one of the chemical suppliers. The hats were made by a top fashion designer and cost upwards of \$50 each. A Florida hat manufacturer saw the hats, liked the idea of using paper and is now producing summer straw hats for ladies priced in the \$3 to \$5 range. He reports that paper is more workable than other fabrics he has used.

Several processes have been announced to produce paper with stretch. Still in its infancy, stretchable paper through further research will find the new markets to invade.

Pulp Mill in for Major Overhaul

The head of one university pulp and paper school says, "Every processing step in the pulp mill could be tremendously improved. New developments in the mills have depended almost entirely on the processing equipment available. Equipment manufacturers, in general, have been reluctant to depart radically from accepted designs. This attitude is quite understandable, considering the highly reactionary attitude of the industry itself."

"Real progress can be made most rapidly if independent research organizations undertake fundamental studies of all operations in the pulp mill. The scope of such studies should

not be hampered by considerations of what commercial equipment is available. If equipment is not available to carry out the processing suggested by the results of research, such equipment can be readily designed. It then becomes necessary to build pilot plant installations of sufficient magnitude to prove to the industry that the new techniques are sound for commercial application.

"I believe there has been a real awakening of our industry in the past ten years, and it will become increasingly receptive to new ideas in the next decade. Today, the whole industry recognizes that the days of batch pulping are in the past."

Mill in Arizona Unusual Enterprise

• One of several projects under consideration for 1960 action by Powell River Co. is acquisition of a ground-wood mill in Arizona—the first and only pulp mill in this Southwest region—and its conversion to newsprint production.

President M. J. Foley told PULP & PAPER that Powell River Co. had been approached by interests in Flagstaff with a view to having the big British Columbia newsprint company take over assets of Arizona Pulp & Paper Co., formerly operated as Coconino Paper Co.

Economic studies are in progress with Vice Pres. Harry Andrews of Powell River in charge. James M. Potter of Phoenix, has been active in negotiations. As president and general manager, he launched the new mill.

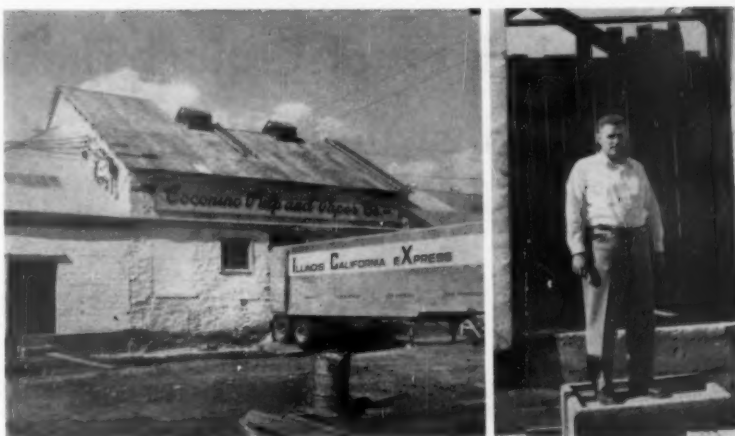
"It's a possibility; that's about all we can say," Mr. Foley also said Powell River is looking at other possibilities, and what it does will depend a good deal on the market trend. He was referring to a proposed mill at Kitimat, B.C., and expansion of Brooks-Scanlon lumber operations in Oregon into pulp and paper.

There is a special report to PULP & PAPER on the Flagstaff mill: It was intended to be a newsprint operation and groundwood facilities, grinders, etc., were installed, but no paper machines. If Powell River Co. acquired the mill it would become a newsprint mill, using ponderosa pine as raw material, and with a capacity of about 65,000 tons annually.

This Arizona mill was the first ever built in that state and is still the first and only one pulp mill in the six-state area east of California. Well managed private Tree Farms in this area support it. A very important lumber firm in the region, Southwest Lumber Mills Inc., is planning another pulp and paper mill of its own near Snowflake, Ariz.

The wet lap 50% dry groundwood from the Coconino mill, built several years ago was first shipped to Los Angeles, about 500 miles. The mill made about 25 tons a day. When Mr. Potter installed drying equipment it brought the pulp down to about 12% moisture content. For a period, some of the pulp was shipped to Kansas City and vicinity for containerboard. Some went in newsprint. A national pulp brokerage house contracted for the outfit. Plans to add a Fourdrinier never materialized.

The Flagstaff mill is in the heart of a large tract of ponderosa pine inside Coconino National Forest. The



PULP & PAPER pictures of Coconino Mill and President-Mgr. J. M. Potter, who pioneered first mill in this area of U.S.A.

U.S. Forest Service says the area supports an annual cut of 50 million bd. ft. of sawtimber. Within 25 miles of Flagstaff there is about 400,000 cords of pine pulpwood from 6 to 10 inches diameter.

Forest Service spokesmen told PULP & PAPER a major forest problem is getting proper balance between stocking and site productivity and pulp and paper mills in Arizona will help this.

Water Supply a Worry

Actually the water supply caused greater anxiety during the initial planning period than anything else. After it was once pointed out that the mill, through careful designing, could operate on approximately 3000 gallons per ton of capacity or about 75,000 gallons a day, the reaction was much more favorable, said the U.S.F.S. officials.

Once the wood and water requirements were assured the development took shape quite rapidly. The search of a mill site resulted in Babbitt Brothers offering their former slaughterhouse at a nominal rental. The Babbitts are a pioneer family in the state and have played a major role in development of Flagstaff. George Babbitt, who at the time the mill was in the planning stage was postmaster, was exceedingly cooperative. Now a partner in the Babbitt and Wynn investment firm in Phoenix, his interest has continued in the mill as well as the entire forest products field.

The mill presently uses 4-pocket 27 in. x 60 in. Pasco grinders. Other major equipment items are: a bull

screen; Apnew centrifugal screen; E. D. Jones decker; decker chest; broke beater; Downingtown dryer (32 rolls); Dillon cutter and 150-h. p. Steammaster boiler.

Mr. Potter hails from Minnesota where his family was associated with the pulp and paper industry. He had formal pulp and paper engineering training. Prior to coming to Flagstaff, he owned and operated the Arizona Fiber Products Co. plant at Phoenix. This plant produced an insulation board from wheat straw and waste cotton fiber.

Much of the woods production is done by well trained Navajo Indians. This type of employment appears to be well suited to the Navajo skills.

In the normal course of events the timber is marked by a Forest Service technician. The marked trees are next girdled, after which chemicals are applied. For best results the trees should be treated during the active growing season.

The Forest Service assisted the establishment of the pulpmill in a number of ways. Initially the Forest Utilization Division of the Station interested Mr. Potter in considering ponderosa pine by having tests made at the U.S. Forest Products Laboratory to determine the suitability of the wood for the groundwood process. These results proved to be very favorable. This was followed up by surveys of the available pulpwood, made cooperatively with the personnel of the Coconino National Forest, and lastly a timber sale was made by the Coconino Forest at a nominal rate to cover the initial supply of pulpwood.

First Japanese Mill in North

1. Born of Critical Timber Need
2. Construction was Real Pioneering
3. Log Haul: A Dramatic "First"
4. A New Magnesia Base Pulp Mill

By LOUIS H. BLACKERBY
Western Editor, PULP & PAPER

—Sitka
● Southeastern Alaska's forests—which for many years went "begging" for timely usage—are progressing well beyond the extent that appeared possible only a decade or two ago. Completion of Alaska's original woodpulp mill at Ketchikan in 1954 was the first important accomplishment in this direction. Production startup of the all-new Alaska Lumber & Pulp Co. Inc. mill at Sitka—the state's second cellulose plant—two months ago signaled a significant advance in forest management, economics and the general betterment of the entire region.

In addition to its multi-beneficial effect on Alaska, the new plant may contribute equally as much to the benefit of the Asiatic people, particularly the Japanese. Although dissolving pulps are now available in North

America for utilization domestically and abroad, the Japanese rayon industry cornered a permanent and constant 120,000-ton-per-year raw product source by building this mill.

The plant was conceived, designed and erected for producing high-grade alpha cellulose for the Japanese rayon industry. It is, in general, considerably like the Ketchikan plant. The two mills, located 180 air-miles apart, both make highest qualities of cellulose. Both were built to produce dissolving pulp but can also manufacture high-grade bleached paper pulps. Both use the magnesia base sulfite process and recovery system.

Originally, a few voices were raised on both sides of the Pacific Ocean protesting Japanese industrial entry into Alaska, indicating, "it isn't the thing to do."

For the past 40 years an all-but-pleading invitation has been out to industry to come into Alaska. Other

new North American mills, however, were built closer to Eastern U.S.A. markets. Although several American firms went north for first-hand examination of pulp production potentials, only Ketchikan Pulp Co. and Alaska Lumber & Pulp Co. have as yet taken advantage of what is available. Two other firms have been successful bidders for large blocks of U.S. Forest Service timber in southeastern Alaska, but neither has displayed definite plans for erecting the plant required to validate purchase contracts. Use of sawmill chips and success of inland mills in Canada and U.S.A. proper slowed up Alaska's development.

Alaskans are pleased with this second pulp mill. The region has long been dependent on seasonal business, fishing and tourists, in particular. Mining has declined. Year-around industry, especially a growth industry such as woodpulp, is considered essential to the new state's economy.

1. Born of Critical Timber Need

With the end of World War II, U.S. occupation forces recognized Japan's extreme shortage of timber and resultant difficulties involving rehabilitating the rayon and paper industries. Rehabilitation depended on replacing wood cellulose supply, previously available in Manchuria and other areas now held by China and Soviet Russia.

The Japanese investigated North America as a potential source of timber, sending missions to Washington D.C. and Alaska, in 1952 and 1953. Alaska Pulp Co. was formed late in 1953 and its American subsidiary, Alaska Lumber & Pulp Co., later the same year.

Of four large timber blocks offered

in southeastern Alaska by USFS for the government's avowed purpose of (1) utilizing present tree stand, (2) converting forest from stagnant old-growth to productive young growth and (3) bolstering the regional economy, Alaska Lumber & Pulp submitted the successful bid for the Sitka sales area. In January 1956 it received a preliminary award for purchase of 5½ billion bd. ft. of timber in designated areas of the Tongass National Forest. Terms required mill construction before the end of 1961. The company beat the deadline by two years. The official contract was made Oct. 15, 1957, between the U.S. government and Alaska Lumber & Pulp.

The contract imposes a number

of restrictions and requirements concerning manner of harvesting, insuring adequate reforestation and provision for fire protection. Logging must be planned in advance and the plan submitted to USFS. Harvesting must be approved before logging of a specific tract can be undertaken. Virtually all southeast Alaska timber is owned by the U.S.A.

Seeking to create maximum job opportunities, the timber purchase contract provides that labor for mill and logging—"so far as it is practicable to do so—will be recruited from residents of southeastern Alaska."

The Sitka mill (340 tons per day), built as a means of increasing the

America Pioneers New Methods

5. Pulping is Automated Throughout

6. Finishing with 24 Hour Storage

7. Instrumentation is the "Heart"

8. Research – Trans-Pacific Operation

supply of raw products resources for Japan's rapidly growing industrial economy, is the largest of many "overseas" ventures undertaken by Japanese industrialists.

When Alaska Lumber & Pulp contracted with the U.S. government for the Tongass timber purchase only slightly over two years ago, more than \$54,000,000 had been invested in foreign lands by the Japanese during the previous six-year period. This rate of foreign investment on a world-wide basis has not diminished; in fact, it's increasing extensively.

The Japanese have been producing lumber in Alaska for the past few years and are interested in obtaining coal and petroleum from the 49th state. Since 1954, some 14,000,000 ft. of lumber per year has been shipped to Japan from Alaskan sawmills—principally from the 130,000-ft.-per-day Wrangell mill owned by Alaska Wrangell Mills Inc. and leased to Alaska Pulp.

Approximately 71% of the \$65,000,000 Alaska Lumber & Pulp enterprise was financed by Japanese capital—a project that had official blessings from the Japanese government. American capital accounted for the other 29%, although ownership is Japanese.

U.S. capitalization consists of \$12,000,000 in 6% first mortgage bonds negotiated through Dillon Read & Co. Inc., New York investment banking firm. These securities—first to be sold in the U.S. in 25 years by a Japanese firm—were bought by Prudential Insurance Co. of America, Equitable Life Assurance Co. of the U.S. and General Electric Pension Trust. In addition to these bonds, \$7,000,000 in senior notes were taken by eight American firms, which also participated as major suppliers of equipment for the Sitka mill. These include General Electric Co., Chicago Bridge &

Iron Co., Improved Machinery Inc., Rice Barton Corp., Ingersoll-Rand Co., Sumner Iron Works, Bingham Pump Co. and Isaacson Iron Works.

Company Executives

All officers of Alaska Lumber & Pulp are Japanese, as are the directors, with the lone exception of R. E. Robertson, a Juneau attorney. Most of

them are, or have been, officials in the stockholder companies of Alaska Pulp, the parent firm.

After World War II Tadao Sasayama, president of both Alaska Lumber & Pulp and the parent organization, was appointed by Gen. of the Army Douglas MacArthur as chairman of a group chosen to split up various Japanese family cartels.

AT SILVER BAY, near Sitka, plant of Alaska Lumber & Pulp Co. has been hewn out of primeval Alaskan forest.



SITKA MILL

2. Pioneering in Modern Construction

The Silver Bay plant site, as it now exists, is man-made. At first, there had to be wartime-like "beach landings," to get materials ashore. Prior to starting construction two years ago, a short but fast mountain stream flowed through what has become the center of the present mill to discharge into the bay. Incidentally, the chief engineer, Harold D. Cavin, was a Sea-Bee Commander in World War II in the Pacific, and knew about establishing "beachheads." But there was no shooting involved at these landings.

This river (locally known as Sawmill Creek; officially, Medvetcha River) has not only been relocated at its lower end, but dammed at its upper end.

The site proper had to be built up with 900,000 cu. yds. of fill dredged from the bay. Its isolation created more than normal difficulties. Camp facilities had to be built for a self-contained 568-man construction community, including bringing in and setting up a large diesel-electric power plant (two 1,136-kw generators).

Dredging started Labor Day 1957 and was completed the following February. Construction took over and continued until the plant was completed and started up in November 1959, nearly two months ahead of the originally-scheduled target early in 1960.

Relocation of the lower end of Sawmill Creek and retention of the newly-formed outlet with a rock-concrete revetment to confine the stream so it will not interfere with plant site and delivery of logs was a significant early-stage construction factor. However, a project involving provision of water from the stream's upper end surpassed the lower stream job in difficulty.

Sawmill Creek is short, about three mi. in length, flowing from Blue Lake down to the bay. It drains a 35-sq. mi. mountain area that serves as the plant's entire water supply and will also furnish water for driving a 6,000-kw hydro-electric power plant to be built next summer as a Sitka municipal project.

Assuring adequate year-around water supply necessitated erecting a dam to increase storage. To transport water from the dam to the ALP plant, and the prospective power plant,

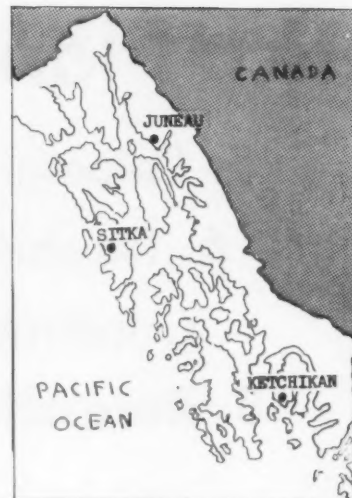
called for extensive tunnel construction through two mountains and connecting the tunnels with giant steel piping.

Even though Sitka Pulp Mill Builders did the actual construction work, the over-all water project involved ALP, Sitka and federal agencies. Alaska Lumber & Pulp, to assure early completion of the dam to a sufficient height advanced to Sitka \$2.2 million (through purchase of municipal bonds) to finance construction. Rugged mountains and solid rock were blasted to reach Blue Lake.

First stage of the two-stage dam has been completed and now stores water to 230-ft. elevation above sea level in sufficient quantity to meet present and anticipated mill needs. Second stage, yet to be built, will add another 120 ft., thus increasing storage capacity to meet the needs of a city-owned power plant. Municipal power will not be consumed by the pulp mill.

Water flows from the dam through the first of two tunnels totaling more than 1½ mi. in length. At the terminus of the first tunnel the water enters a 509-ft. long 7-ft. dia. steel pipe functioning in the dual capacity of aqueduct (conveying water across Sawmill Creek) and conduit (connecting the tunnels).

Discharge of the second tunnel emerges from the mountain at the point where the hydro-electric plant will be built. This is opposite Sawmill Creek from the mill and adjacent to the mill's filter plant. The tunnel is



ALASKA'S NEW MILL is at Sitka, some 900 miles from its source of supplies, Seattle, Wash. Pulp is shipped 4000 miles to Japan.

tapped, near its lower terminus by a large water line supplying all mill needs. Prime flow is to the filter plant, a 36,000,000-gpd unit. A secondary line delivers unfiltered water directly to the mill.

Water flows from filter plant to mill distribution through 2,000 ft. of pipe produced by American Pipe & Construction. This pipe—1,650 ft. or 48-in. dia. and 350 ft. or 36-in. dia.—is constructed of pressure-tested steel cylinder lined with ¾-in. thickness smooth concrete and spirally outer-wrapped with tensioned steel rod overcovered with ¾-in. concrete. Construction is designed to achieve long trouble-free use with minimum maintenance and maximum throughput.



CONSTRUCTION FEAT: Two enormous tunnels transport entire water supply of both the mill and the proposed Sitka hydro-electric plant. Here, Jim Hutchison, res. eng., inspects the 7-ft. steel conduit connecting the tunnels.

WATER TREATMENT

The water treatment plant—designed jointly by Northwest Filter Co., ALP and Rubens & Pratt, Seattle engineers, has 34,000,000-gpd nominal capacity, 40,000,000-gpd top. A turbo-generator slightly supplementing the mill power supply has been incorporated at the treating plant to reduce the high head of water. The turbine discharges to a surge chamber connected to the initial mixing chamber by a 48-in. line containing the raw water control valve and flow venturi for metering chemicals. Excess water discharges over a weir in the surge chamber and flows through a concrete flume to the river.

The arrangement provides constant flow for driving the turbine, while the treatment plant automatically modulates flow of finished water to the mill according to demand.

Chlorine is added to raw water ahead of the initial mixing chamber, alum and caustic solutions in the influent mixing elbow of the mixing chamber. The chemically-impregnated water goes to a secondary chamber for additional mixing, then to two coagulation sections via laterally-divided flow.

Chemical-mixing and coagulation is achieved (without use of moving, mechanical mixing equipment) by Northwest Filter's "mass-mixing" system.

Each of the two treating plant sections has five coagulation stages and two mixing stages. Floc-bearing water from the final coagulation chambers is distributed across two settling basins.

One coagulation section and settling basin can be isolated from the other while continuing to utilize entire filter capacity. Under emergency conditions this flexible arrangement allows the plant to operate with an entire settling basin removed from service.

Treated settled water from the settling basins passes through six doublewash filters. These are conventional rapid sand-bed filters except that they are manifolded in pairs. Each pair acts as a single unit during filtering service, but each filter bed backwashes individually to distribute the backwash load more evenly. The manifolded arrangement reduces the number of valves and sluice gates required and "decreases the instrumentation required by 50%."

By analyzing raw water during a 16-month period, average turbidity was found to be low—6 ppm, color 11 ppm. Consequently, backwashing with raw water was selected. A control-equipped surge tower has been installed in place of a backwash pump,



FILTERED WATER from elevated treating plant flows to mill through 1000-ft. concrete cylinder pipe supplied by American Pipe & Construction.

with resultant capital and operational savings. A rinse cycle provides effluent containing less than 1 ppm of color and/or turbidity.

Instrumentation is such that chemical proportioning, basin level and clearwell level are fully automatic. During first months of operation the backwash cycle is being started manually but is automatically controlled.

Provisions have been made for subsequent addition of monitoring equipment so the plant can operate on a totally unattended, automatic basis.

ISOLATION DIFFICULTIES

The pioneering aspect in building the Sitka mill compounded normal problems. Not only did the mill site have to be built, but the area was devoid of wharfing and handling facilities. Throughout the entire plant-building project materials and equipment were barged in, principally from Puget Sound, Wash., and "beach landed" to get materials ashore.

An important factor in the over-all

construction project involved completion of a railcar ferry slip that facilitated transport of loaded cars by barge directly from Seattle to the mill site. This slip, complete with auxiliaries for barge tie-up, adjusts vertically to compensate for both tide and weight of load on the barge.

The plant builders (Sitka Pulp Mill Builders) set up a gravel pit and gravel storage; built a cement-mixing plant and temporary power plant (two 1,136-kw generators furnishing power for the project), and installed temporary water supply from Heart Lake.

Mill buildings are of precast concrete slabs made in Tacoma, Wash., by Concrete Technology Corp. and barged to Sitka. Component slabs are 4 ft. \times 4 in. and 20 and 24 ft. in length. Corrugated fiberglass was installed in exterior building walls, contributing to appearance and light admission. Roofs are of precast concrete slabs with built-up roofing. Building frames are structural steel with concrete floors.

3. Log Haul: Plant's Dramatic "First"

The ALP wood plant incorporates an effective combination of processing facilities of various types and a newly-developed drive component expected to have significant application throughout the industry.

Logs enter the plant from the mill pond area via a 220-ft. bull-chain type log haul rising nearly 50 ft. en route. Delivery is made direct to the mill deck, equipped with a 108-in. overhead vertical-swing cut-off saw manufactured by Sumner Iron Works. Beyond this point log flow is divided. If large logs are too long for the subsequent processing components, they

are cut to length by the big cut-off saw before entering a sorting area. Small logs are not normally processed in the cut-off area but continue to the sorting area.

Large logs are routed from the sorting deck to a Bellingham type (Sumner) barker in which the bark is removed by a high-pressure (1,600-psi) water jet applied by a cluster of nozzles moving the full length of the cradled revolving log.

Freed of bark, large logs go to a 10-ft. Sumner band mill, where logs over 32-in. dia. are converted to cants ready to be chipped. Logs smaller

SITKA MILL

than 32-in. are ready for chipping when ejected from the barker, by-passing the headrig.

Logs of 26-in. dia. or less go from the sorting area to a slasher to be cut to length before being debarked by a 30-in. Hansel ring debarker.

All bark-free wood—logs and cants from the headrig side and small logs from the ring barker—is converted into chips by a 153-in. eight-pocket 16-knife Sumner whole-log chipper that has capacity for logs up to 36-in. dia. Chips discharge to a Link-Belt conveyor and are delivered to enclosed storage.

Water from the hydraulic barker is screened and recovered organics are added to the main bark supply and burned in power boilers.

A dramatic "first" in this wood plant is a unitized electro-hydraulic log haul, custom-engineered by Western Gear Corp., which supplied approximately 175 gear drives transmitting more than 5,000 total horsepower in the ALP plant. It is anticipated that this new concept will solve many problems and provide a degree of control in speed and power not previously achieved with this type of equipment.

Operational specifications for the log haul are: 48 ft. of rise in 220 ft. of haul; maximum chain pull not less than 50,000 or more than 65,000 lbs.; haul 200 linear ft. of 24-in. dia. logs at 120 lfm.; reliability; frequent starting and stopping, jogging, accurate log positioning, overload and anti-shock protection; provision for vari-

able speed to allow operator to match capacity with log deck; variable torque to accommodate small logs at high speed and large logs at low speed; fail-safe braking system.

An electro-hydraulics drive was selected as most practical, reliable and economical for the job. Western Gear combined its deck machinery experience and transmissions-and-log-hauls background to design and produce what has been termed "the first really new log haul in recent years."

How the log haul operates:

A 125-hp ac motor drives a variable-stroke hydraulic pump from which the fluid is directed by valves to two fixed-displacement hydraulic motors driving through a 52:1 reducer to the head sprockets. A simple mechanical linkage from the "joy stick" control in the operator's pulpit allows him to vary the stroke of the pump, subsequently the volume of fluid to the motors and, correspondingly, the speed of the head sprockets. Speed is infinitely variable from 0 to 185 fpm.

A simple valve system controlled by a toggle switch on the operator panel allows the hydraulic motors to drive either in parallel or in series. Series operation provides full speed at half-maximum torque; parallel operation, maximum torque at half-speed. A built-in "horsepower limiter" control takes over when the speed/torque combination equals 125 hp and automatically reduces speed, as required chain pull increases, to maintain a constant 125 hp until reaching maximum torque condition. (Note sketch illustrating functional characteristics of system.)

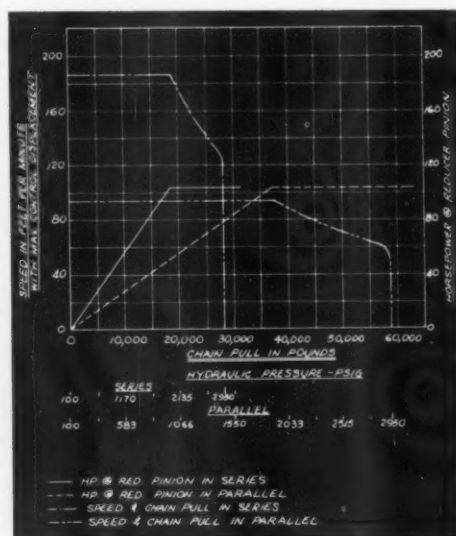
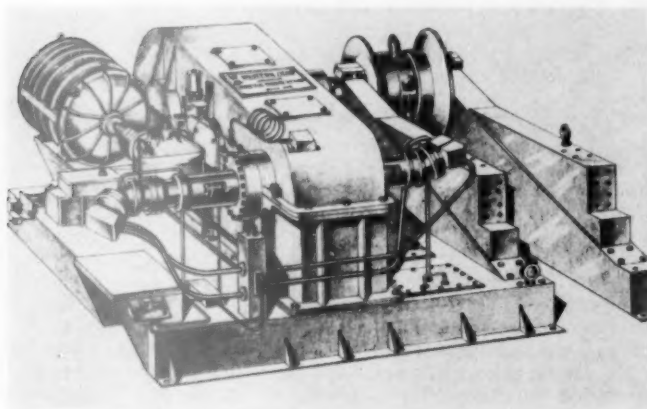
An oil-immersed, spring-set, pressure-released disc brake is built internally with the reducer and located on the input shaft. Fluid pressure to the motors simultaneously releases the brake; conversely, whenever there is no pressure to the motor, the brake is set. This provides a positive fail-safe stop system. Any interruption in electrical power or fluid pressure, either planned or accidental, results in a "drive stop-brake set" condition. Oil immersion of brake plates makes for minimum wear and maximum heat dissipation.

Unitized design and construction provides protection to pipes from physical damage; freedom from leaks has been maximized by (1) utilizing the main machinery base as the oil reservoir and (2) integrating a majority of the valve components into single, internally-ported block bodies. This design reduces the number and length of pipe runs to a minimum. All major components of the hydraulic system, except pump and motors (Vickers), were by Western Gear.

Four 600-unit concrete chip silos provide sufficient capacity for three days' operation of the pulp mill—based on 815 units of chips per day at a 340-ton production rate. Chips from wood plant feed by shuttle conveyor to any one of the storage units.

Chips, on leaving the silos, go to three Rotex chip screens (of 45 units per hr. total capacity) en route to a 160-unit surge bin. A main belt conveyor, equipped with weightometer, transports chips from the surge bin to digester room, there delivering to a shuttle belt transporting chips directly to digesters.

CUSTOM-ENGINEERED LOG HAUL: Electro-hydraulic log haul developed by Western Gear for the Alaska plant is said to achieve maximum dependability and efficiency. Functional characteristics of the log haul are shown in chart at right.





MAIN BOILER OPERATING AREA at Sitka: Two B&W MgO recovery units in left foreground, two B&W power boiler units in left background. At far right: operating panel for recovery boilers, CB&I Conkey evaporators.

4. MgO: Elimination of Sulfite Problems

Construction of the Sitka mill definitely refutes the popular statement of a decade ago: "There will never be a new sulfite mill built." This is North America's third in that period, including Ketchikan in 1953, Cosmopolis, Wash., in 1956. These mills all use the magnesium bi-sulfite recovery process developed by Weyerhaeuser Co., Howard Smith Paper Mills Ltd. and Babcock & Wilcox Co. The magnesia base cooking and recovery process has eliminated two sulfite mill pulp problems—economical recovery of chemicals and economical heat recovery from the cooking liquor—and, in addition, has reduced stream and air pollutant factors. This process will soon be introduced in the Hylte Bruks mill in Sweden and possibly in Austria.

This is a cyclic process in which MgO and sulfur are recovered by evaporation and burning of the waste liquor, by-producing process steam power and hot water from the burning of organic solids.

The power and recovery group is an outstanding example of the mill designers' firm conviction that conveniently-arranged equipment receives better care, with resulting increase in efficiency and reduction in maintenance and operating costs.

Fundamental concept of grouping all liquor evaporation, burning, primary heat and chemical recovery, secondary chemical recovery, acid-making, wood fuel burning, supplemental steam gen-

eration and electrical generation in one area has been carried out to the highest degree.

Equipment has been arranged to follow a simplified flow diagram. Weak liquor from the red liquor washers in the digester building is conveyed direct to storage tanks in the evaporator room, where the liquor is concentrated in a nine-body sextuple-effect Conkey evaporator system furnished by Chicago Bridge & Iron, thence to heavy red liquor storage tanks for pumping direct to the two Babcock & Wilcox heat and chemical recovery boilers. Pumps in this system: circulation, Bingham; transfer and heavy red liquor, Ingersoll-Rand.

Product of combustion, including SO₂ and MgO ash, passes through Western Precipitation multiclone dust collectors, where the MgO ash is recovered from the flue gases. The MgO ash passes through a Dorr-Oliver washer so that the recovered MgO can be added to the absorption towers for reuse in the acid-making cycle. Flue gases, after leaving the multiclone dust collector, pass directly to cooling towers equipped with Alaskan Copper Works external heat exchangers producing hot water for pulp bleaching and cooling the gases so that SO₂ can be absorbed in the absorption towers. The secondary recovery system consists of one cooling tower and three absorption towers for each recovery boiler. The towers were lined and packed by Chemical Linings. In the secondary recovery and acid plant there are also fortification towers sup-

plied by a Chemipulp sulfur-burner lined by Stebbins Engineering. Acid is filtered by gravity sand filters.

Bark-burning is equally simple. Bark and refuse from the wood room is conveyed to two American Defibrator bark presses located at the rear of the power boilers. De-watered bark (hogged) is then metered to each of the two Babcock & Wilcox power boilers through Link-Belt feeders. Power boilers are equipped with oil burners for supplemental or alternate steam generation.

Boiler water is conditioned in a Cochrane demineralizer and fed to the boilers by Bingham boiler feed pumps. Bingham pumps supplying high-pressure water for the hydraulic braker are located adjacent to boiler feed pumps. All four pumps of these two pairs are rated at 1,000 gpm, 1,500 psi. One pump of each pair has a 1,200-hp G.E. turbine drive, the other is driven by a G.E. electric motor—1,500-hp for barker pump, 800-hp for feed water pump.

The power and recovery group was designed to take maximum advantage of the completely-closed cycle sulfite recovery system. It is anticipated that chemical usage will be on the order of 20 lbs. MgO and 50 lbs. sulfur per ton of unbleached pulp produced. Heat recovery in the form of high-pressure steam for power generation and process will be at the rate of approximately 13,000 lbs. per ton of pulp produced, which will be in excess of 70% of that required.

In addition to steam from recovery boilers, hot water from the secondary recovery system in the amount of 3.5 million Btu per ton is also available.

A detail study of operating pressure was made to provide a heat and power balance that would supply all electricity on a "by-product" basis and still leave room for expansion. This resulted in selection of a boiler operating condition of 860 psig, 825°F to enable the mill to be self-sustaining without any dependence on outside power.

Major portion of steam (over 70%) is provided by the two recovery boilers using the Babcock & Wilcox magnesium bi-sulfite heat and chemical recovery process. Steam is generated in two recovery boilers, each designed to burn 550,000 lbs. of solids per day with steam generation of 114,200 lbs. per hr. each. Supplemental steam is provided by two B&W combination oil- and wood-burning boilers, each rated at 120,000 lbs. per hr. on wood-firing or 160,000 oil-firing. These are arranged for a combination of wood- and oil-firing in any percentage as dictated by the amount of bark and

SITKA MILL

wood refuse. Power is generated in two General Electric turbine-generators each rated at 9375 kva, designed for a turbine throttle condition of 850 psig, 825° F. One unit is arranged for extraction at 50 psig and condensing with an Ingersoll-Rand condenser for start-up and frequency control. The second is arranged for 50-psig back pressure with 150-psig extraction.

Equipment is arranged for maximum efficiency of operation. Primary operating and control is from the operating level located 27 ft. above the ground floor. From this one floor, meters and controls for the two power boilers, two recovery boilers, the evaporators, reducing and desuperheater stations have been conveniently grouped.

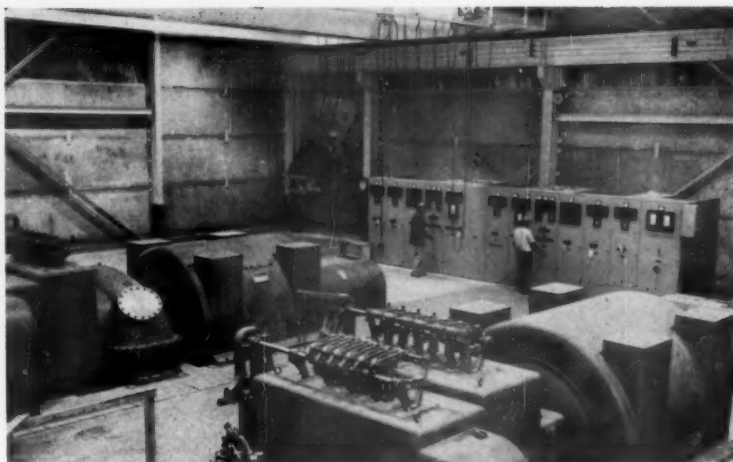
The secondary operating floor is at ground level, where all pumps, compressors, sulfur burner and water softeners are located.

All equipment, conveyors, piping and instruments for the power and recovery group was installed by C. C. Moore & Co., Engineers.

Boiler plant instrumentation was under direction of Arthur Dammann, ALP plant engineer. Control and metering components were selected and arranged to permit operation of the power and recovery plant with minimum operator effort in fulfilling the requirements of automatic supervision and the recording of significant variables.

For operating convenience, the most important controls and meters are on the main operating floor in the aisle facing power and recovery boilers. From this aisle operators control and supervise operation of the two power boilers, two recovery boilers, evaporators, pressure-reducing stations, desuperheaters, feed water controls and hydraulic barker pumps. Meters and instruments for control of the two power boilers are located in a control panel immediately in front of No. 2 power boiler. These components automatically control and regulate proportions of hogged fuel (bark) and supplemental fuel oil with the back readjustment from the flue gas oxygen analyser.

The instrument panel for control of recovery boilers and evaporators is located in front of No. 2 recovery boiler. Here also, automatic combustion control can be obtained by tie-back with the flue gas oxygen analyser. Arrangement of evaporator controls adjacent to the recovery boilers gives the operator supervision over the recovery boiler fuel (heavy red liquor).



ELECTRIC POWER IS PRODUCED by two GE 7500-kw turbines, both using 800 psi, 825° F steam; installation includes GE switchgear, Minneapolis-Honeywell instrumentation. At top: one of plant's several Ederer bridge cranes.

Entirely self-sufficient power-wise, the Sitka plant generates electric power at 4,160 volts and distributes it through tray-mounted PVC armored cable to substation; tributary to use points. Every major plant building has its own substation, most with adjacent switching control centers for the tributary area. Power distribution in the pulp preparation section (digesters, accumulators, screen room and bleach plant) utilizes a PVC-coated conduit system.

Various combinations of illumination types are used. Each section is equipped with the type and intensity of lighting considered most effective for conditions and processing functions involved. Mercury vapor, tempered with incandescent, is used in machine, finishing and turbine rooms; straight mercury vapor for illuminating the hydraulic barking operations; fluorescent in the administration building and machine shop; mercury flood lights for filter plant, log pond and yard lighting; shaded incandescent throughout other building areas.

All chemical materials for mill operation are barge-transported from Seattle to the Sitka plant—about a 100-hr. run. The barge has a special compartment for hauling 50% caustic. Caustic is pumped through flexible rubber hose into mill storage. Chlorine, magnesium oxide and sulfur are transported in railcars that are transferred from the on-barge tracks to the mill rail system by a Porter diesel-electric locomotive.

These chemical cars are transported to respective unloading stations. Magnesium oxide, used to supplement the

recovered MgO, is transferred from the car to a hopper and conveyed to storage by bucket elevator. For use in the system, MgO feeds from the bottom of the storage tank, is slurried with water and pumped into the power plant to be combined with recovery MgO.

Sulfur, shipped via molten tank cars, is transferred to a molten storage tank adjacent to the acid plant. From there it is pumped to the two stainless steel Chemipulp spray-type burners.

Extensive use has been made of polyester glass-reinforced corrosion-resistant material in the acid plant and in washing, bleaching sections of the mill. These molded fiberglass materials—which include tubes, ducts, stacks and hoods—were made by Corite Products, Chicago, and Corrosion Controllers, Camas, Wash.

Except for these specific applications, stainless steel was installed throughout all areas where corrosion problems exist—amounting to approximately 600,000 lbs. of stainless in sheet, bar and tube form alone. Extensive use of stainless valves and cladding is not included in this estimate.

Type 304 stainless is used in machine room for stock and water lines. Stainless installed elsewhere was specified as high-analysis 316—almost 317. Purchases included both U.S.- and Japanese-produced stainless, fabricated in U.S. Alaskan Copper Works, Seattle, did most of the fabrication work, including all stainless pipe, fittings, acid coolers, and heat exchangers (except for digester heat exchangers, which were made by Electric Steel Foundry Co.).



FIRST WITH BREAKER STACK INSIDE CASING, this two-section RB Minton dryer at the ALP mill has 408-ton-per day design capacity, contains 49 dryers. Pneumatically-operated door in casing (adjacent to control console) provides access to stack between first and second sections.

5. Pulping to Minton is Automated

Alaska Lumber & Pulp went all-out in purchasing equipment—"buying the most modern available"—for this mill built to produce rayon pulp grades, states Thomas R. Stein, mill manager. After calling attention to the fact that this plant has production facilities for making any grade of dissolving and paper pulp (pulp that can be treated to meet customer requirements), he states, "initially, we do not anticipate producing any acetate pulps." The plant was designed and built for high efficiency regarding chemicals, fibers and crew.

Cooking is carried out automatically except for charging and closing covers of the six 10,500-cu. ft. Hortonclad digesters built by Chicago Bridge & Iron. Each digester has an 800-cu. ft. Electric Steel Foundry indirect heat exchanger of a type developed for application in kraft pulping systems. The heat exchangers, constructed of high-316 stainless, are of the fixed-head type. Top and bottom digester circulation is by Bingham 5,000-gpm stainless pumps. Each digester has capacity for yielding 19 tons bleached pulp per cook.

Cooking is carried out automatically by cam-type Honeywell controllers mounted in a long, well-lighted panel in the glass-fronted control room on the digester operating floor level. This panel is also equipped with Foxboro instrumentation.

Four Chicago Bridge & Iron Hortonclad dump tanks of 128-ton total capacity provide surge capacity for flow of cooked chips to Impco knotters and on to four 9½ × 16-ft. Impco counter-flow washers. Washed stock is subsequently processed by a battery of ten A-25 Impco centrifugal screens (eight primary, two secondaries and a two-section flat screen for tailings), a sidehill screen (designed by ALP, built by Flohr & Co.) and two Impco deckers.

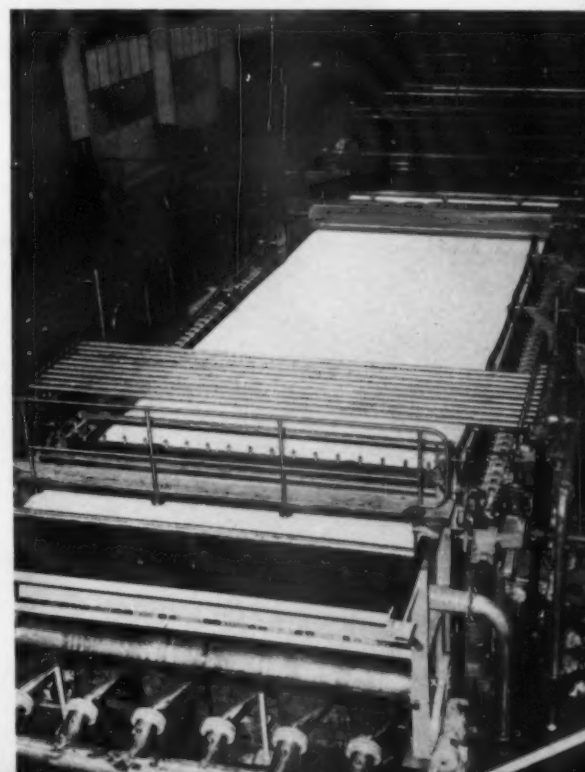
The system provides effective fiber washing yet keeps losses to a low range of 4 to 5%, according to Mr. Stein. The versatile, multiple-stage bleach plant was designed and built with a view to future bleaching developments as well as present needs, so "any grade of dissolving or paper pulp can be treated to meet customer requirements." Installed bleaching facilities include chlorine, caustic and hypochlorite stages. A chlorine dioxide tower has also been installed, although present plans do not include use of the ClO₂ stage.

The bleach plant has eight 9½ × 16-ft. Impco washers and auxiliaries for all or part of the following series: Chlorination, caustic extraction, soak, first hypochlorite, chlorine dioxide stage, second hypochlorite and a sulfur dioxide stage—each stage followed by washing with a single washer except for the chlorination stage,

which is followed by two washers.

A high-density unbleached stock storage tank built of tile by Stebbins is provided for storing 180 tons of 14% (BD basis) stock between red liquor washing and bleaching processes. A

DRIBBLE SHOWER invented by Sitka mill manager is mounted one foot above the traveling wire of this Rice Barton Fourdrinier machine in the new mill. Water dripping on stock eliminates "shiners" at formative stage.



SITKA MILL

ring outside the tank supplies dilution water. Impco dilution valves and oscillating nozzles mine diluted high-density stock from in-tank storage for pumping to the chlorination tower.

Self-supporting hoods for the red liquor washer series and both series of bleach washers were built of molded fiberglass (Corite) by J. O. Ross Engineering. Vents extending between hoods and ceiling can be telescoped so that the Ederer bridge crane can remove and replace molds.

Bleached stock storage is provided by two tanks (108-ton total at 3.5 consistency) ahead of bleach screen room, which has four A-25 centrifugal Impco screens operating in parallel. Final cleaning of stock is by a 4-stage Bauer Cleaner system. This installation consists of 846 4-in. Cleaners, the respective stages consisting of 680, 100, 50 and 16 units. Three 16 $\frac{1}{2}$ \times 14-ft. Impco deckers process the clean stock that is converted to 3 $\frac{3}{4}$ % consistency by a DeZurik machine room regulator immediately ahead of the

19-ton capacity (3.5%) machine chest and stuff box. An ACAP (Allis-Chalmers) fan pump supplies low-consistency stock to the machine headbox.

MACHINE: ORIGINAL APPLICATIONS

Several unusual features have been incorporated into the machine room area and its components. The machine, 320 ft. in over-all length, including headbox and reel, is a Fourdrinier-Minton dryer combination built by Rice Barton.

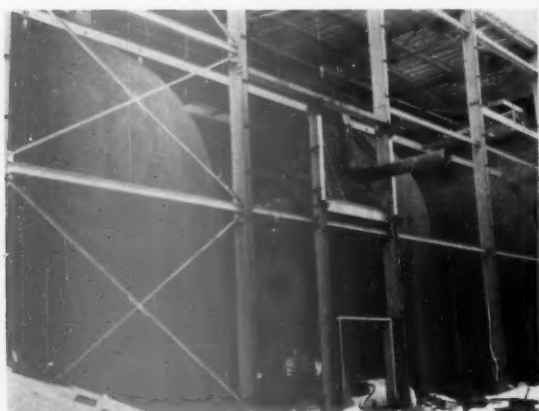
It is the industry's first Minton dryer to be installed on the second-story level. This arrangement, according to George Gouker, production supt., facilitated utilizing the ground-floor area beneath the machine for installation of auxiliary equipment. Consequently, mill designers were able to obtain maximum capacity for pulp rolls in the storage area adjacent to the machine room, while keeping transport distance to a minimum.

According to Ray Smythe, who represents Rice Barton on the West Coast, this is the first Minton dryer to be specifically designed and built

for large-scale production of dissolving pulp. Although other Minton dryers are producing dissolving grades, construction-design criteria for these machines were not primarily predicated on the manufacture of dissolving pulp.

The RB Flowspreader headbox is equipped with a scientifically-designed inlet that distributes stock evenly across the wire. Shortly after flowing onto the wire, stock passes under a 10-line "dribble shower" unit mounted about 1 ft. above the traveling wire. These showers, developed by Mr. Stein (see p. 41-42 Sept. 1957 PULP & PAPER), are arranged so water drips from each pipe onto the wire-carried stock in such manner as to produce a fiber dispersion effect. Mr. Stein says this basic arrangement for applying water to stock on the wire disperses fiber collections, then individual fibers settle independently on the wire, thus eliminating "shiners" at the formative stage.

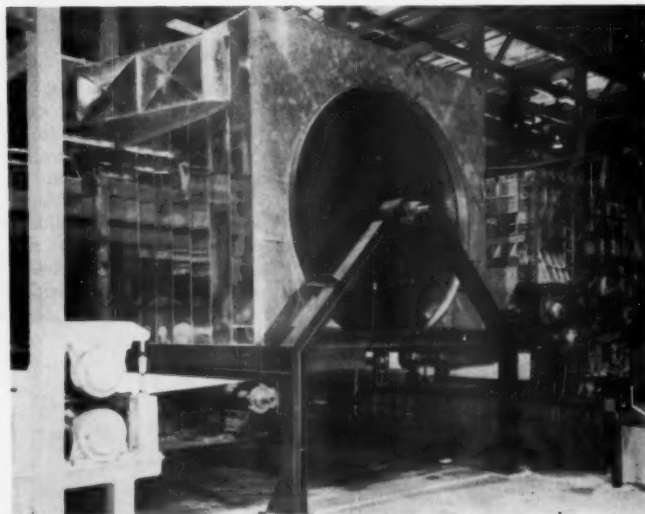
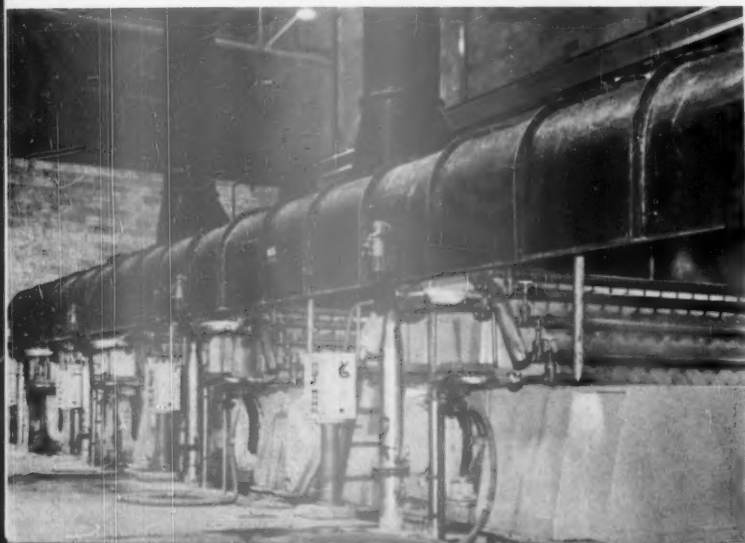
The Fourdrinier section has RB pneumatic-automatic wire guides, two



VIEWS DURING MILL CONSTRUCTION show (1) accumulators and (r) acid plant tanks, both supplied by Chicago Bridge & Iron. CB&I also furnished Hortonclad digesters and bleach towers.

RED LIQUOR WASHING with four 9 $\frac{1}{2}$ \times 16-ft. counterflow Impco units operating in interior-lighted hood built of molded fiberglass by J. O. Ross Engineering.

HOT PULP SHEET LEAVING MINTON DRYER goes directly to Brinkley air dryer for pre-storage cooling.



shakes, traveling deckles, table and wire rolls "Ebonite"-covered by Huntington Rubber, four stainless steel suction boxes, Evans Rotabelt, a 36-in. bronze couch roll and self-doctoring 30-in. lumpbreaker roll neoprene-covered by Griffith Rubber.

First and second presses of the RB 3-press section are suction presses; the third, a heavy-duty plain press, with rubber-covered bottom roll and stainless steel top roll, is designed for maximum nip pressure of 1,000 lbs. per linear inch. The presses have felts, Vickery felt conditioners, air-operated felt guides and hydraulic pressloading. Press roll covering was by Griffith Rubber, including neoprene self-doctoring "Topress" rolls on first and second presses.

The press section delivers to a 175-in. Minton vacuum dryer, the first to contain a breaker stack inside the casing for compacting the dissolving-pulp sheet. This two-section Minton of 408-ton design capacity has 49 dryers (60-in. dia. \times 170-in. face) designed for 100-psi steam pressure, Ross-Midwest Fulton steam control and drainage system, Bowser lubrication, top and bottom felts in each sec-

tion and RB doctors. Rice Barton sheetbreak detectors, installed inside the shell, operate in conjunction with an alarm system for alerting operating personnel if a break occurs.

The breaker stack, consisting of two 40-in. dia. \times 175-in. face chilled iron breaker rolls, has panel-controlled hydraulic loading designed for maximum nip pressure of 1,000 lbs./linear in.

Top and bottom doors in the wet end of the Minton and another under the out-going seal roll provide convenient access to the rest of the dryer.

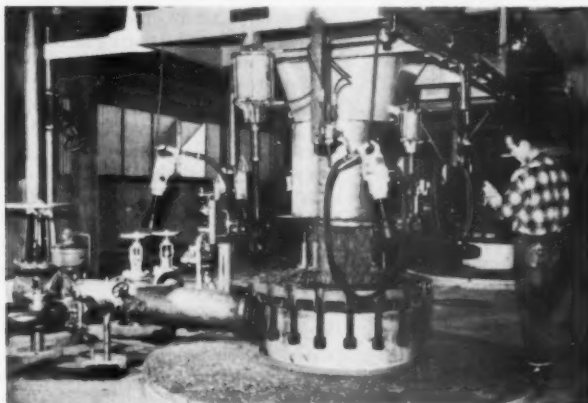
The sheet emerges from the Minton through Griffith-covered neoprene seal rolls directly to a 12-ft. dia. air dryer (Johnson type built by James Brinkley). This hooded cylinder unit functions primarily as a sheet cooler, reducing temperature to eliminate color reversion and other degradation factors from the pulp before going into storage. The sheet on leaving the air dryer passes through a pair of 24-in. dia. draw rolls, then feeds directly to a horizontal RB reel capable of making 90-in. dia. jumbo rolls on a 42-in. dia. drum.

The machine is powered through a Rice Barton differential drive by two

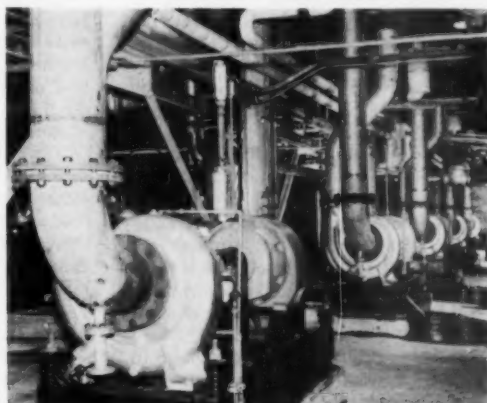
250-hp G.E. dc prime movers supplemented by auxiliary electric drives for top rolls. The line shaft is equipped with sectional braking and inching drive. Intakes are driven through hypoid-Fawick clutch combinations. Over-all width of Minton dryer and drive is approximately 35 ft. The dryer is equipped with an Ingersoll-Rand barometric vacuum system.

Pumps and felt runs are located in the basement area beneath the machine room. All are readily accessible. Of the seven Roots-Connersville vacuum pumps used in conjunction with the machine, five are duplicate 2-stage components piped to be readily interchangeable. These units (12 \times 30 in. and 10 \times 22 in., each powered by 1,200-rpm 200-hp G.E. motor) individually serve couch roll, first press, second press, Rotabelt and the Minton dryer. Two other R-C pumps—both single-stage—are jointly powered by a double-end motor to provide vacuum for flatboxes and felt conditioners.

Broke, handled mainly via the finishing room production route, is processed by a Morden Slush-Maker located at the dryer end of the basement.

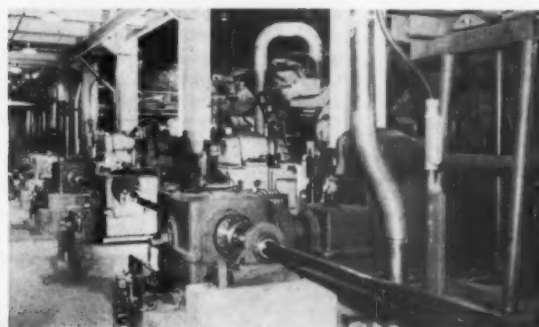


WEIGHT-MEASURED CHIPS ARE CHARGED into CB&I Hortonlad digester via Link-Belt chute.

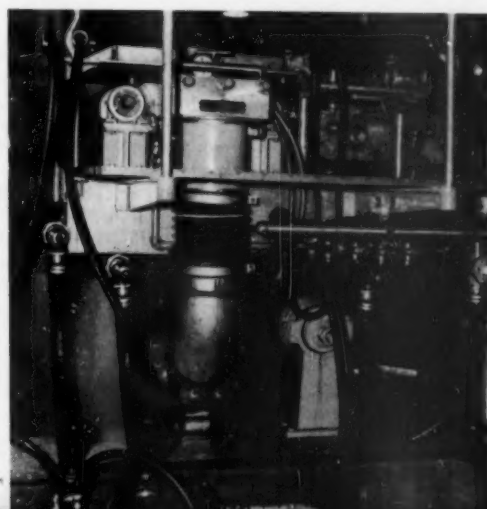


DIGESTER CIRCULATION is provided by Bing-ham pumps.

MACHINE IS POWERED through RB differential drive by two 250-hp General Electric dc prime movers plus individual top-roll helpers.



OUTFEED END OF FOURDRINIER has Rotabelt suction unit for low-friction, high-output performance.



SITKA MILL

6. Pulp Finishing: 24-Hour Storage

Roll storage is similar to the system used at Ketchikan and other dissolving pulp plants. Jumbo rolls are transferred from the reel to steel storage racks by Isaacson Iron Works for placing 3-high on core journals. A 17-ton Ederer bridge crane transports rolls to and from storage, which has capacity for 168 rolls.

This arrangement, in addition to assuring that rolls will remain cylindrical (no flat sides), provides for obtaining any individual roll from storage by removing no more than two rolls. The weight of the roll is not borne by the pulp at anytime except while being transferred from the machine room to bridge-crane pick-up station in the finishing room via rail-mounted transfer car. Rolls, normally in storage about 24 hours, are paired to meet customer order specifications according to moisture content, basis weight, viscosity, etc.

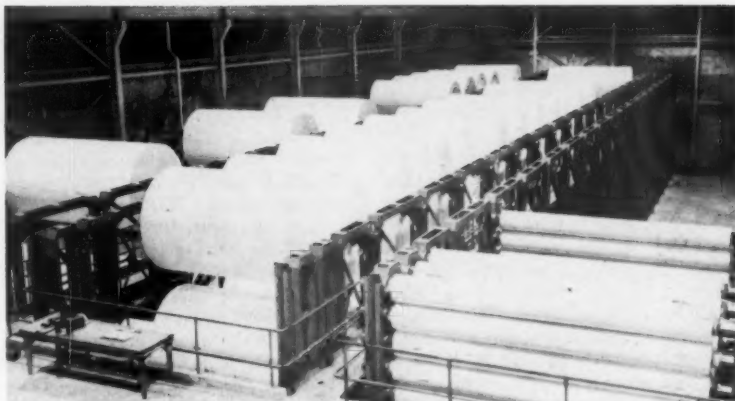
Processing equipment for the finishing room was chiefly provided by Clark-Aiken, the order involving components larger than this old-line organization had previously built. Actually, this is the first West Coast pulp finishing room in which C-A equipment is used extensively.

Rolls removed from storage are placed in back stands, of which there are two pair equipped with airbrakes to keep feeding sheets taut and wrinkle free. Two back-stand reels feed simultaneously to the cutter, the pulp passing through a decurler en route to remove slack spots and curl. The pulp can be cut into sheets ranging in length from 16 to 52 in. Sheets from the cutter continue on through the layboy.

The cutter has a Lewellen adjustable cone-pulley drive facilitating variation in cutting rate in relation to feed speed.

The layboy stacks sheets to a predetermined height (approximately 20 in.) and automatically discharges the stacks to a receiving belt (six at a time) for delivery to a track-mounted transfer car serving six stand-out storage belts. Each belt has capacity for 30 bales (stacks)—five layboy charges, each charge weighing from 1 to 1½ tons depending on customer specifications.

Although comprehensive data are worked up from samples taken from



STORING DISSOLVING PULP ROLLS three-high on core journals eliminates risk of flat sides, makes for efficient handling, gives 168-roll capacity plus space for empty cores.

pulp in storage, part of which is the basis for selecting paired rolls for finishing, final and official moisture samples are taken of pulp on the finishing room stand-out conveyors. It takes up to 1½ hrs. to run test; on these samples. By the time the final data are in hand, stacks have been baled.

The six stand-out conveyors, which have 28-in. 3-ply white Goodyear belts for carrying the pulp stacks, serve as surge for the baling section and have capacity for an hour's production.

A transfer car receives pulp stacks (six at a time) from the stand-out conveyor section and delivers them to either of two bale make-up sections.

Each section has a receiving belt delivering layboy stacks to an airfloat conveyor, where the operator (one per make-up section) makes up a "Showa Pack" for protecting the Japanese pulp bales. This involves pulling two top-sheet pairs out to over-lap corner and edges, then covering the stack with an 85-lb. kraft double wrapper. Placed on top of the stack, this wrapper will end up as bottom wrapper of the bale. With "bottom" wrapper in place, the pulp stack feeds into a foot-controlled 180° roll-over that clamps pneumatically, rolls electrically. Each roll-over unit is airfloat-equipped.

As the succeeding stack feeds into the roll-over, the rolled stack discharges to an airfloat table equipped with Fairbanks, Morse scales. At this point the stacks are brought to precise 400-lb. weight by adding or removing one or more sheets. Only minimal weight correction is necessary as the stacks are made up of a precise number of sheets at the layboy. Top "Showa Pack" edge protection is applied, and the stack feeds into one of two Washington Iron 1,000-ton hydraulic presses. The Japanese pulp is

subjected to 800-ton pressure for 20 seconds.

Compressed pulp stacks discharge from the presses to a cross conveyor serving a baling section consisting of two sets of tying machines—one set operating, the other on stand-by basis. Each set consists of two tying machines (Auto-Wire Twistlock built by Cranston Machine, Inc., leased from C. Tennant Sons operating in tandem).

Three men work in the tying section. One positions top wrapper and feeds the stack into the first machine for application of three side wires. A turntable automatically turns the bale to crosswise position. Two operators then fold wrapper ends and feed the bale into the second machine, which applies two end wires and automatically discharges to a conveyor leading to a lowerator.

Bales are automatically stacked three high in the lowerator and transported to the ground-floor to be discharged onto a fork-lift feed conveyor for transport and placement in storage. Eight Gas-electric Automatic Transportation fork trucks transport and handle pulp from the end of the stack conveyor to inside storage to wharf storage to ship sling.

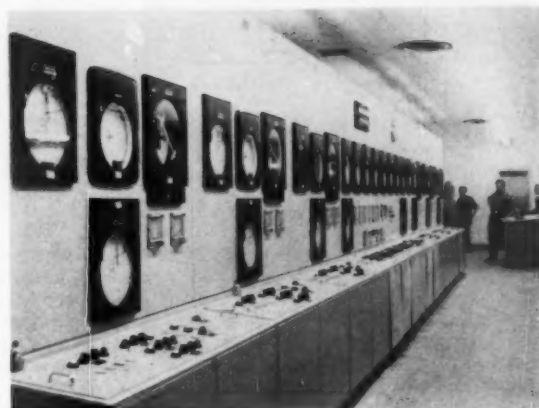
A 50 × 560-ft. free-span Butler steel building (from Hallidie Machinery, Seattle) situated on the 81 × 600 ft. wharf provides capacity for 22 days' production. Two ships, each making one round trip per month, will transport the plant's 120,000-ton annual pulp output to Japan.

Trials of a Roving Editor

Louis H. Blackerby, P&P's Western editor, got an unusual "warm" welcome in Sitka when he flew there to get this exclusive story. His Alaskan experience is reported on page 162.



CENTRALIZED CONTROLS for Nos. 1 and 2 recovery boilers and evaporators. Panel at right: ammeters for all evaporator circulating pumps.



PUSH BUTTON OPERATION from the digester control room, where cooking is automatically programmed.

7. Instrumentation: Heart of Operation

Instrumentation has been provided throughout for producing high-quality dissolving pulp with a minimum of operating personnel. There are eight control centers, each located within the mill section served. Where feasible, instrument panels are enclosed in pressurized control rooms with windows to afford a view of the equipment. In lieu of graphic panels, layouts on panels were planned to coordinate with pump and interlock sequences in the order in which equipment would be started or shut down.

"The heart of our operation is the bleach plant control room," says John F. Resch, instrument engineer. "Here we have combined all instruments and electric controls for the entire wash, screen and bleach sections. Also included are instruments and controls for continuous hypo manufacture and caustic dilution. To reduce the size of the panels and control room, extensive use was made of miniature instruments. These were furnished by Minneapolis-Honeywell, as was the major part of mill instrumentation. Foxboro furnished all pressure and temperature transmitters where pneumatic transmission was used. Conventional round chart recorders were also used where applications required. Stock flow into the bleach plant is measured with a Foxboro magnetic flowmeter."

Speed controls for red liquor and bleach plant washers are pneumatically-controlled and operated from either a locally-mounted panel at the washer or the control room. The enclosed digester control room instru-

ment panel contains instrumentation required for six digesters, with a separate panel for acid accumulator and absorption system control and a master control panel for instrumentation common to all digesters. Digesters are steamed automatically with a Minneapolis-Honeywell cam program controller. Chips are weighed to each digester with a Merrick belt conveyor scale.

Acid plant instruments for two lines of absorption towers and the Chemipulp spray type sulfur burners and cooling towers are enclosed in a pressurized room. Burner temperature is measured with a Honeywell Radiomatic temperature recorder, while SO_2 concentration is measured with Leed's & Northrup analyzers, with provision for future addition of automatic control of secondary air.

Power, recovery, evaporator and turbine instrument panels are cubicle and located for optimum operator attention. Power boiler instruments and controls were by Bailey Meter, as were feedwater control valves to all boilers. Control valves for the high-pressure reducing stations for steam and water were by Republic Flow Meters.

Filter plant instrumentation is designed for complete automatic control. A Minneapolis-Honeywell Dur-O-Pulse system monitors operation of important controls and relays this information to the turbine room panel.

Two panels are provided for the machine room. These are of the cubicle type and are located at the wet and dry ends of the pulp machine. The wet end panel provides

instrumentation for the decker level water flow, consistency, white water and stock chest level controls. Also incorporated on this panel is a console front for all pump push buttons and indicating lights. The dry end panel has instruments for control of steam pressure to the Minton dryer and differential pressure controls for the Ross-Midwest Fulton condensate removal system.

Extensive use was made of butterfly valves for controlling stock flow, water and steam throughout the plant. These Allis-Chalmers valves are operated by Conoflow positioners. Double-ported cast steel valves were furnished by Fisher Governor; ported stainless steel valves are the Conoflow L.B. type. To minimize outage due to corrosion, all valves requiring stainless steel construction were made from high-moly stainless steel.

Instrument panels were manufactured in Seattle by Coates Electric and shipped to the site completely piped and wired. Instruments were given a preliminary check before shipment. Panalarm units are provided in all control centers.

Extensive use was made of Dekoron Multi-Cor plastic tubing to bring pneumatic signals from field junction boxes to the panels. Unistrut tubing supports were used throughout for supporting tubing. More than 35,000 Crawford Swagelok tube fittings of various types and materials were used to complete the tubing installation.

To insure a constant source of clean dry air for instruments and controls, an Ingersoll-Rand carbon ring compressor and a Trinity air dryer have been provided, and all instrument air headers are of copper tubing. To insure continuity of operation for applications requiring water purges, a separate pump is installed.

SITKA MILL

8. Research is a Trans-Pacific Operation

The plant's well-equipped laboratory facilities were designed to provide all production-stage data needed to achieve customer specifications.

Research is done both in Japan and here. Leslie K. Bickell, technical director, formerly headed technical activities for Alaska Pine & Cellulose. The general plan is that fundamental research plus customer service will be done in Japan, whereas investigations of mill problems and development of pulp suitable for customers will be done in Sitka.

Dr. A. Hatano, chief chemist of the

research and development group, will handle Sitka research under Mr. Bickell.

In addition to responsibilities concerned with production, the technical department is carrying out a definite program to maintain water standards tributary to the plant area. A full study of salt water conditions in the vicinity was made, in conjunction with the Univ. of Wash. Dept. of Oceanography and government agencies, prior to construction.

A thorough long-range survey of pollution and salinity conditions in

Silver Bay continues. Permanent sampling stations have been established.

Besides using a high-recovery, low-effluent pulp production process, the company keeps close check on the conditions of receiving waters to make sure that purity criteria are maintained. Effluent, containing but minimal amounts of fibers and chemicals, discharges into Silver Bay to at least 65-ft. depth.

The laboratory proper consists of 10 rooms or sections devoted to specialty functions. These include the following: constant-temperature-humidity room for pulp testing; wet lab, equipped with chip classification screens, flat pulp screen, press dryers, centrifuge, drying oven, equipment for bleachability test, etc.; viscosity



By **B. FRANK HEINTZLEMAN**
Former Governor of Alaska
Retired Regional Forester of Alaska
(Written especially for
PULP & PAPER)

● The long and strenuous campaign to bring the timber resource of Alaska into substantial use has scored again with establishment of the mill at Sitka. The campaign was actively started in the late 20s and had its first signal success with building of the \$60,000,000 Ketchikan Pulp mill in the 1950s.

The years between were filled with strenuous efforts directed toward smoothing the way for timber-use industries of the large size the situation demands. The results are shown by the two pulp mills now in operation and two additional pulp mills, sawmills, plywood plants and red and yellow cedar specialty factories in prospect.

The campaign required and received the coordinated work of many public agencies concerned with development of Alaska. The Forest Service as manager of the timber of the

Great Forest Industry Future Envisaged in State of Alaska

Tongass National Forest of southeastern Alaska cruised and mapped hundreds of thousands of acres of timberland. The Geological Survey investigated the available water supply and hydro sites of the region. The Bureau of Reclamation drilled dam sites to determine foundation conditions. The Bureau of Land Management made land surveys of areas to be occupied. The Bureau of Roads built highways to plant sites. The U. S. Congress enacted legislation to compensate Indians, through the Court of Claims, for any lands carrying aboriginal rights that could conflict with the right of the federal government to sell cutting rights on the timbered areas. The territorial government (of pre-statehood days) offered tax incentives for a 10-year period to large new industrial enterprises coming into the territory.

With this work foundation, the Forest Service studied the economics of possible large timber-use development of Alaska, conferred with industrialists and investment bankers and offered long-term timber cutting agreements, by competitive bid, to interested concerns. The agreements were designed to protect the contracting mill operators against unreasonable or arbitrary action by the federal timber management agency, and, on

the other hand, the public interest.

The latest studies of the timber resource indicate that approximately 1 billion bd. ft. of Western hemlock, Sitka spruce, and Western red and Alaska yellow cedar can be cropped yearly in perpetuity from the two National Forests on the south Alaska coast east of Cook Inlet.

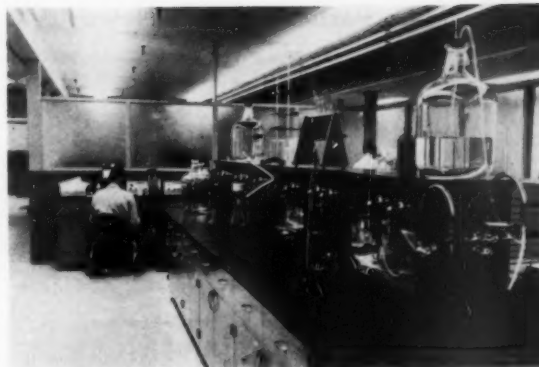
There should be no holding back in efforts to obtain, as quickly as economic conditions permit, the additional mills which the region can support. Under sustained yield forest management timber cannot be "saved up" for any appreciable number of years. Uncut mature timber is lost.

In addition to the National Forests which contain most of the coast type of timber, the part of the state inland from the south coast, and exclusive of the Arctic Slope, has extensive areas of land carrying a far different forest type. It consists of white spruce, birch and poplars and in Alaska is called the "Interior Forest." The forest inventory now in progress indicates that perhaps as much as 75,000,000 acres are now or previously were covered with this class of timber. Unfortunately, forest fires, and especially successive fires on the same area, have reduced the remote virgin timber stands to a total area of perhaps 20,000,000 acres.

The Interior Forest type contains

test section, equipped with pneumatic tubes for receiving samples from digester, bleach plant and machine room grading lab, and dispatching information back to these points; sample preparation area; chemical pulp testing section for special tests of dissolving pulp attributes, including alpha cell content, soda solubles, metals, ash content, etc.; analytical section; solution lab; development section; viscose lab with Blaschke viscose unit (made by Emil Blaschke Maschinenfabrik, Stuttgart-Endersbach, Germany), in which pulp can be steeped, shredded, aged, xanthated, dissolved and ripened, and a separate lab section for process engineers, used by Ralph Keef, formerly of Ketchikan Pulp, and Ted Montag, previously of Brown Co. and Solvay, engineers concerned with acid plant, digester and recovery sections;

GENERAL ANALYTICAL SECTION of Sitka lab, equipped with Kewanee fume hoods, muffle furnace, Chemrock-topped tables.



Don Cullingham, from Canadian International Paper, process engineer for the bleach plant area.

Bixby Bonnie, formerly of Scott Pa-

per, Everett, is lab supervisor. George Juzwiak, formerly of Alaska Pine & Cellulose and Columbia Cellulose, is asst. lab supervisor.

Man With a Mission Sees Dream No. 2 Come True

In the very first issue of this magazine, the Feb. 1927 issue, the author of a lead article was a then little known forester in Alaska named B. Frank Heintzleman. He wrote glowingly of future potentials for pulp and paper in the territory, now a state.

Ever since then he has "preached" this same "gospel." No missionary ever was more devoted to a great cause. He traveled thousands of miles, back and forth across the United States, trying to interest pulp and paper investors. Hundreds of this industry's leaders know and admire him, though most said "no." Finally came success—Ketchikan in 1953. But one mill was not enough for Frank Heintzleman.

Even while he was governor of Alaska, the idea of five or six pulp and paper mills in the Northland was still

the dearest of all dreams in his heart.

Today, from his home in the Baranof Hotel, Juneau, he continues his virtually life-long mission—contributing his own time and travel to the work to which he is dedicated.

In the accompanying article, this quiet but forceful man-with-a-mission characteristically credits everyone but himself with the job done in Alaska. The facts are that he did and is doing the job almost single-handed. He spearheaded timber and water power studies in the North, took the lead in drafting the cutting contracts offered prospects, helped to clear the dangerous cloud of Indian claims, studied pulp and paper industries to know them better, urged tax adjustment incentives, and devoted over 30 years to "selling" his dreams.—The Editor.

the same timber species and, in its virgin stands, about the same tree sizes and volumes per acre as forests of eastern Canada, where the type contributes substantially to one of the world's largest pulp and paper manufacturing regions. When production of the coastal forests of Alaska approaches the maximum sustained yield, the effort for further timber industries should be shifted to the Interior Forest.

The fire protection system of interior Alaska, now highly efficient but far too small, should be enlarged. The yearly fire toll continues to run to six and seven figures in acreage. Fire protection alone can be depended on to provide a new crop of trees on millions of acres.

The state, which has the privilege of selecting many millions of acres of open public lands as a land grant from the federal government, might very well include timber tracts in in-

terior Alaska, and put them under adequate fire protection and sound management, held permanently for production of timber (and wildlife). Timber growth in this region is too slow to expect private enterprise to go into forest practice. The job must be done by public agencies.

The Interior Forest should be managed primarily for pulp for the general markets, and secondarily to meet local timber needs.

Unquestionably, the Alaska forests constitute one of the best of the state's resources for fostering immediate and future development. They will help the state in meeting the problems involved in the transition from a territorial status to statehood and, being a renewable resource, can continue to produce wealth indefinitely. Unlike minerals, and especially petroleum (a presently speculative resource in Alaska), the forests of

Alaska are a proven resource. The timber is visible, and its quality and quantity can be closely determined.

As to markets—Alaskans are looking especially to Japan at this time, and also to China if and when the government of that country becomes more rational and stable. China's teeming millions constitute a fabulously large potential outlet for many products from nearby Alaska.

All Alaskans salute Alaska Lumber & Pulp as the second largest industrial enterprise ever established in Alaska, as an operation that will use yearly more than 125,000,000 ft. of timber now going to waste in our coastal forest, and for making possible a substantial start in an export trade with the Orient, which apparently will soon include not only high-grade pulp, newsprint, lumber and plywood, but also coking coal, iron ore and possibly petroleum.

SITKA MILL

Personalities Participating in Newest North American Pulp Development



Sasayama



Stein



Bickell



Fukuyama



Kyono



Hatano

Prime Movers in Sitka Pulp Mill Project

THESE MEN LED THE WAY in creating Alaska's newest pulp mill: President TADO SASAYAMA; Mill Mgr. THOMAS R. STEIN, formerly res. mgr. for Rayonier Inc. at Jesup, Ga.; LESLIE K. BICKELL, technical director, formerly technical service director for Alaska Pine & Cellulose; Exec. Vice Pres. SAKAE FUKUYAMA,

previously managing director of Honshu Paper Mfg. Co. Ltd.; NOBU KYONO, Seattle Univ. engineering graduate long associated with the project and now sec. to exec. vice pres. at the Seattle office, and DR. AKIRA HATANO, chief chemist, research-development group.



Kobayashi



Ushiba



Niki



Ishida



Doswell



Rice



Masaki



Momma



Arisawa



Oshima



Lyon



Blakely

In Charge of Services

DANIEL J. DOSWELL, formerly with Columbia Cellulose, is public and industrial relations mgr.; LLOYD M. RICE, also from Columbia Cellulose, is personnel supervisor; STANLEY LYON, mill/woods safety supervisor recently named world's champion tree-climber-topper; DELBERT R. BLAKELY, res. accountant.

ALP Officers and Directors:

KEY EXECUTIVES include: JUNICHIRO KOBAYASHI, board chairman and formerly president of Oji Paper Co. Ltd.; Vice Presidents TOMOHIKO USHIBA, YASUO NIKI (also sec. treas.), YUKICHI ISHIDA, TAKASHI MASAKI, ATSUSHI MOMMA, YUKIO ARISAWA (also exec. director of Kokoku Rayon & Pulp Co. Ltd.) and TAKUJI OSHIMA.



Gouker



Dammann



Berry



Magnusson



Rork



Gormley



Downes



Hockinson



Doyle



Vaughan



Born



Resch



Bonney



Helem



Westlund



Vaughan

These Are the Men Who Maintain Production at Sitka

Production Supt. GEORGE L. GOUKER, formerly asst. supt., Rayonier Inc., Fernandina Beach, Fla.; Res. Engineer, ARTHUR DAMMANN, at one time instrument and process engineer, Ketchikan Pulp; GUDGER MEECE, sulfite supt., formerly with Ketchikan Pulp and Scott Paper Co.; Pulp Mill Tour Foremen RALPH MAGNUSSON, GLEN RORK (from Ketchikan), JAMES GORMLEY (B. C. Forest Products) and JAMES DOWNES (Alaska Pine & Cellulose); JERRY HOCKINSON, yard supervisor; THEODORE DOYLE,

finishing and warehouse supervisor formerly with Ketchikan Pulp; ERNEST J. VAUGHAN, wood supervisor, previously with Columbia Cellulose; FOREST BERRY, utility supt., formerly with Ketchikan; DONOVAN A. WESTLUND, master mechanic; GORDON J. HELEM, chief electrician; JOSEPH C. BORN, maintenance supt., formerly at Rayonier, Jesup; JOHN F. RESCH, instrument supervisor, formerly with Rayonier, and BIXBY BONNEY, lab supervisor, formerly with Scott Paper, Ketchikan and Puget Sound.

Engineer Cavin and Aids Add Another Mill to Their Success

Harold D. Cavin shouldered over-all responsibility for the entire Sitka Mill project as chief engineer, a role in which he has broad experience. His industry career began more than 30 years ago at Hardy Ferguson Co. assisting Justin McCarthy in building what is now the St. Regis pulp mill at Tacoma, Wash. Mr. Cavin subsequently was chief engineer in building the first unit of Scott Paper's present plant at Everett, Wash.; (then Soundview); a Tacoma plant expansion; the first unit in Puget Sound Pulp at Bellingham, Wash.; Hollingsworth & Whitney's plant at Mobile, Ala.; Puget's second unit (immediately prior to serving in the Pacific as World War II Seabees commander), and, later, the plant's board mill. Following that, he was chief engineer in building of Ketchikan Pulp. Mr. Cavin headed design, planning and construction of these plants.

With conclusion of the Sitka responsibility, he expects to participate in mill-building projects but hopes to do so on a "less intensive" basis.

Design and engineering of the Sitka plant was under the direction of Rubens & Pratt (formerly Stevenson & Rubens—which functioned in a similar capacity in



Cavin Rubens Miller

PRINCIPAL FIGURES in planning and building the ALP mill: HAROLD D. CAVIN, chief engineer, and BORIS R. RUBENS, senior partner of Rubens & Pratt, Seattle, observe PAUL MILLER as he points out car ferry slip on plant model that he built.

building the Ketchikan mill), Seattle consulting engineering firm.

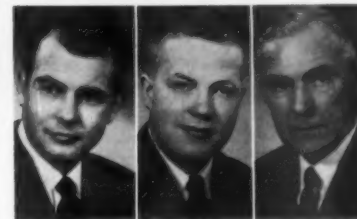
Design and construction of certain Sitka plants were joint participations by ALP engineers with specialty consultants—Vic Palmrose, Beaverton, Ore., (recovery and cooking) and A. H. Lundberg, Mercer Island, Wash. (acid plant).

Rocky V. Lindell, Seattle consultant, participated in arranging and equipping the finishing room.

Mechanical layouts and detailing for the power group (including turbine room, boiler house, evaporator) was done by C. C. Moore & Co. Engineers, Seattle.

Northwest Filter Co. assisted in designing the water treatment plant.

In Charge of Construction



Hutchison Dale Hawkins

JAMES A. HUTCHISON, resident construction engineer. Formerly resident engineer for Ketchikan expansion, then moving to Sitka in charge of plant construction. Currently engaged in St. Regis plant expansion at Tacoma. RALPH DALE, asst. to resident construction engineer, held same post at Ketchikan. RALPH HAWKINS, contractor's project mgr., was previously project mgr. during Ketchikan construction. EARL PETERS, (not shown), of Howard S. Wright, was gen. supt.

PRINCIPAL SUPPLIERS

Chicago Bridge & Iron Co.: Hortonclad digesters and accumulators; dump tanks; red liquor filtrate tanks; nine-body sextuple MgO evaporator; bleach, absorption, cooling towers; fuel, liquor, chemical, filtrate and stock tanks

General Electric Co.: Motors, turbine generators, substations, transformers, motor control centers, switchgear

Rice Barton Corp.: Fourdrinier machine, Minton dryer, machine drive

C. C. Moore & Co., Engineers: B&W power and recovery boilers, demineralizer

Alaskan Copper Works: Major stainless fabricator (pipe, fittings, heat exchangers, SO₂ water tower, absorption tower)

Western Gear Corp.: Gear reducers, log-haul drive

Improved Machinery Inc.: Bleach system, including all major equipment

Bingham Pump Co.: Stainless process and recovery pumps up to 15,000 gpm

Electric Steel Foundry Co.: Stainless digester circulation heaters and strainers, tubing, pipes, fittings, valves

Ingersoll-Rand Co.: Compressors, condensers, dryer vacuum system, pumps

Sumner Iron Works: Wood plant equipment (hydraulic barker, band headrig, chipper, re-chipper, transmission gear, cut-off), hogs

Roots-Connerstille Blower Div.: Vacuum

pumps serving Fourdrinier and dryer
James Brinkley Co.: Chip feeders, agitators, SO₂ gas fan, air dryer, pulp-roll car, suction box separators, hog fuel conveyor

Link-Belt Co.: Conveyors, screw feeders (hog fuel)

Dorr-Oliver Inc.: MgO washers

Morden Machines Co.: Slush-Maker

Bauer Bros. Co.: Cleaners

Washington Iron Works: Baling presses, logging equipment

Clark-Aiken Co.: Finishing room equipment

J. O. Ross Engineering Div.: Heating-ventilating equipment

Ederer Engineering Co.: Bridge cranes, fixed-position hoists

Huntington Rubber Mills Inc.: Vinyl coatings, covered rolls

Griffith Rubber Mills: Covered rolls

Stebbins Engineering & Mfg. Co.: Brick and tile lining, chests

Chemical Linings Inc.: Brick lining

A. H. Lundberg Co.: Chemipulp gas cooler, sulfur burners hypo tank

Minneapolis-Honeywell Regulator Co.: Instrumentation

Foxboro Co.: Instrumentation

Coates Electric Mfg. Co.: Instrument panels

Panalarm Products Inc.: Control-center alarm systems

Hays Corp.: Oxygen analyzers

Hydraulic Supply Mfg. Co.: MgO slaking tanks, acid plant fortifying tower, seal and condensate flash tanks

Allis-Chalmers Mfg. Co.: Fan pump, valves

Armstrong Cork Co.: Insulation

Hansel Engineering Co. Inc.: Ring barker

Fabri-Valve Co. of America: Stainless steel valves

Corite Products: Molded fiberglass piping

Isaacson Iron Works: Structural steel

Otis Elevator Co.: Elevators

Crane Co.: Valves

DeZurik Corp.: Valves, consistency regulator

Orcille Simpson Co.: Rotex chip screens

Ehrsam Pacific: Chip silo elevators

W. S. Tyler Co.: Bark screens

American Defibrator Inc.: Bark presses

Westinghouse Electric Corp.: Closed feed-water heater

Puget Sound Fabricators Inc.: Sulfuric acid, Igapel storage

Hallidie Machinery Co.: Lobdell roll grinder, machine and instrument shop equipment, Automatic Transportation lift trucks, Butler metal buildings

Bumstead Woolford Co.: Deaerating feed-water heater

Milton Roy Co.: Chemical feed pumps

Please turn to page 156

Did Wiggins Teape Do a Pioneering Work in Field of Fiber Bonding?

Editor's note—In the article on the International Fiber Bonding Symposium, held in Appleton, Wis., U.S.A., and published in our November 1959 issue, a paper on *web adhesion* prepared by G. O'Brien and Branislav Radvan, of the Wiggins Teape Research Center, Beaconsfield, England, was described by the editor as "an outstanding new work."

These words have stirred up a debate on what was "new" about it. In questioning several scientists who were there, presumably quite neutral, we have elicited substantial agreement that important parts of this work, at any rate, were definitely "new."

Here are conflicting views from Canada and England:

An Exception—from Canada

—Quebec, P.Q.

Editor: With reference to an article in the November issue, I feel it is necessary to point out that the principles of adhesion were first worked out by a group composed of J. Mardon, A. B. Truman, C. K. Meadley and G. O'Brien and were presented to the Quebec Branch of the Technical Section CPPA Nov. 27th, 1957 and subsequently published in the Pulp and Paper Magazine of Canada 59:10:135. Mr. O'Brien later left Quebec and continued the same work in England.

These same principles were also used in a paper by B. Howe, R. Lepine and I. Gregory which received the

Howard Smith Medal 1959 (Pulp and Paper Magazine of Canada 60:4:99). In this paper the apparatus developed for measuring the work of separation is described.

In the discussion at the Appleton meeting, Dr. O. Forgacs presented some of the later work of J. Mardon which paralleled much of that of O'Brien and Radvan.

The latter authors deserve much credit for their excellent experimental work. Nevertheless, the origin of this line of research should be known to clear up any misapprehension which may exist.

B. I. HOWE,
Anglo-Canadian Pulp & Paper Mills, Ltd.

Another letter on page 97

What It's About: Principles of Adhesion on Paper Machine

A summary and two illustrations submitted by B. Radvan and G. O'Brien of Wiggins Teape Group Research Organisation:

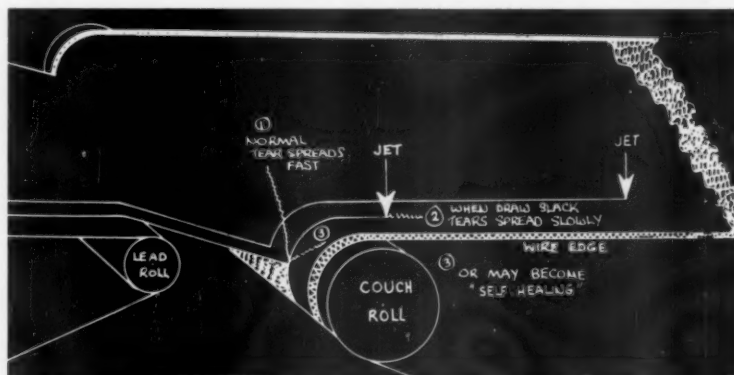
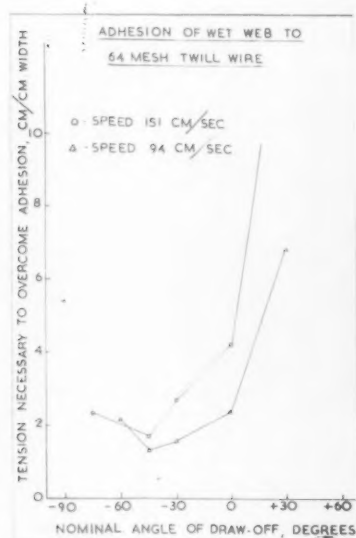
Adhesion of wet web to solid surfaces is greatly affected by the angle

at which paper is drawn off (N.B.: Tight draw gives "positive" angle, i.e. paper pulled forward; slack draw gives "negative" angle, i.e. paper pulled backwards). Laboratory measurements at medium speeds show that adhesion is least when the angle of draw off is slightly negative. It increases with speed, if the angle is positive, but is independent of speed if the angle is zero, or negative. Little effect has been found of small changes in moisture content, or in the smoothness of the surface. The results explain why open draws become un-

stable when slack.

A method of imitating open draw breaks in the laboratory is described. Breaks occur by tearing, not by tensile failure. They start more easily when the angle of draw off is positive, and spread faster. At negative angles of draw off, the web tends to skin rather than tear; if started, the tears spread more slowly, or may even heal themselves.

Cine record of experiments on a slow paper machine confirms these findings. The attached sketch shows the scheme of one such experiment.



A Reply from England

—Butler's Court, Beaconsfield
Editor: The detailed nature of Mr. Howe's letter deserves a detailed reply. The two papers, to which he refers, are fully acknowledged, as references No. 1 & 3, in the text of the lecture, which is to be published in TAPPI, January 1960. We believe that he is already familiar with it, having been given a copy of the original recently. It seems that, on the basis of these two papers, Mr. Howe lays an exclusive claim to "this line of research." We would point out the several earlier references quoted in our paper, in particular reference No.

10 an article by Radvan (Bienkiewicz), Mardon and Robinson, in the Paper Maker, London, September 1952.

Our present paper contains, to the best of our knowledge, the first study of the starting and spreading of breaks, both in the laboratory and on paper machines. The apparatus used for measuring adhesion differed in principle from that described by Mr. Howe, and this made it possible to explain the instability of draw which had puzzled all the previous investigators.

All these publications are easily available; a thorough reading of the

paper will demonstrate that our recent work is by no means a continuation of the work O'Blenes was doing in Quebec.

G. O'BLEMES and B. RADVAN
Wiggins Teape Group Research Organisation
Wiggins Teape & Co. Ltd.

A final editor's note: One thing is certain—the exceptional papers given at Appleton, including much new work, will provide splendid background for the Sept. 1961 Symposium on Bonding, to be held at Oxford University, and which many world renowned industry scientists will attend.

Crown Zellerbach in New Plaza-Skyscraper

Crown Zellerbach Corp.'s new headquarters plaza-skyscraper at 1 Bush St., San Francisco, Calif., has set new standards of office building construction.

Ceilings are grooved for movable partitions by which interior space may be altered to meeting changing needs. This "modular" construction is based on a 5 ft. 6 in. unit, each self-sufficient in lighting, sound proofing, air conditioning and telephone communication. The partitions can be changed overnight to any combination.

All elevators, stairs, lavatories, etc., are housed in a service core. The main office tower contains 2½ acres of glass supported by vertical aluminum strips. The service core is faced with 8 million pieces of Italian mosaic tile,

covering a 1½ acre area. There are no inside columns in the building. An automatic mail conveyor delivers to each floor.

The building is 20 stories high, 320 ft. above street level and is set on a 1½ acre wedge-shaped site. The building occupies one third of the land area, the rest is a landscaped plaza. In the basement is a two-level 150-car garage.

The building rests on an 8 ft. thick concrete mat 30 ft. below street level. The entire load of the rectangular office tower is concentrated on 18 steel columns, 9 on each side, which ascend the height of the building.

Hertzka & Knowles, and Skidmore, Owings & Merrill, were associated architects.



THE 20 STORY Crown Zellerbach building. Note unusual round bank building, also using much glass, at lower left.

Trygve Lie Seeks U. S. Loan For Arctic Mill Near Russia

Oslo . . . Trygve Lie, former United Nations secretary-general and well known Norwegian politician, recently visited the United States in an effort to obtain a loan for the proposed kraft pulp mill or pulp and paper mill to be built at the Arctic Ocean ice-free port of Kirkenes, Norway, close to the Arctic Ocean.

This is a proposed Norwegian-Finnish project, first revealed in a report in PULP & PAPER INTERNATIONAL's October 1959 issue.

Mr. Lie brought back word from New York that the possibilities for an American loan "seem to be promising." A 60,000-ton mill is projected and capital, including working capital, needs are estimated at \$26,000,000.

This project has been attracting worldwide diplomatic interest, as well as that of businessmen, because of its proximity to Russia and the fact that a high standard road would be required for a considerable distance along the Russian border connecting Kirkenes with Finland, the source of wood supply. It may reach to Ivalo, at the southern tip of Lake Enares in Finland. It is proposed that Finland build a sawmill at Ivalo, and chips from leftover wood would supply the Kirkenes mill.

Electric power would be produced from waterfalls of the Pasvik River, which is the boundary between Norway and Russia. Construction of these power stations is based upon a mutual agreement between Russia and Norway, effective several years ago.

Vast pine forests north of 68 degrees latitude in northernmost Finland would, in any case, provide wood supply. These being state forests, Finland could guarantee the wood supply.

Air Systems at the Paper Machine

... where the totally-enclosed hood has brought about savings, increased efficiency, greater production—and worker comfort

By PAUL GOLDNER
J. O. Ross Engineering Division
Midland-Ross Corp.

● Correctly designed air systems at the paper machine can effect substantial economies and increase machine efficiency by 10 to 20%.

The open-type hood was perhaps the first practical answer for removing heat and vapor at the source with a controlled volume of air. Its introduction brought both improved operating economies and greater worker comfort to mills that once were unsalubly operated with no hoods at all. Now, still greater improvements are being obtained through use of the totally-enclosed hood.

The main considerations leading to the rapid acceptance of the totally-enclosed hood include: (1) Contributions to operating economy; (2) practical design; (3) effect on mill conditions and (4) assurance of maximum drying efficiency.

Replacement Air Units

One of the aims of the totally-enclosed paneled and insulated aluminum hood is to control actual vapor conditions inside the hood and equalize these conditions across the dryer rest, thus providing more uniform evaporation across the full width of the sheet.

The felt-drying units supply air at a controlled temperature, and this air is distributed at high velocity through

nozzle pipes located at strategic positions along the bottom felts. These nozzles run the full width of the dryer face, and heated air at a velocity of approximately 4000 fpm is directed vertically onto the felts, providing maximum felt drying conditions and at the same time furnishing part of the air required to carry off evaporated moisture from the paper.

When additional air supply is necessary, it is provided by an air make-up unit. This unit distributes air, at a controlled temperature, by means of air diffusers located in ducts that run along the underside of the roof at the front and rear sides of the machine.

This unit actually serves a dual purpose, for when the curtain panels at the front side of the hood are in the raised position, automatic controls operate dampers that bypass the fresh air around the economizers (if used) and air heaters, and a curtain of outside air is furnished at both the front and rear sides of the machine.

Cross ventilation of the vapor pockets on the machine is accomplished in the standard manner with the Ross-Grewin unit.

Exhaust Units, Economizers

Exhaust fans used with totally-enclosed hoods having Ross Briner economizers are of the conventional centrifugal type, but only about half as many units are necessary because of the much smaller volume of air to be exhausted.

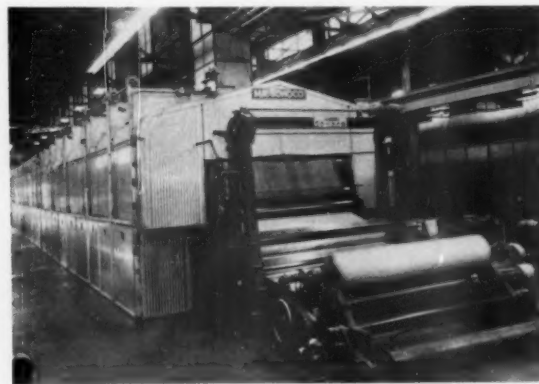
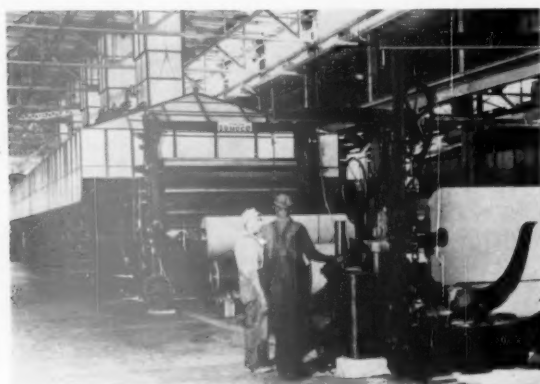
Most mills located in northern climates utilize exhaust vapors from the hood and pass them through Briner economizers. When the economizers are used, waste heat from the machine preheats fresh air supplied to the air supply units. Steam savings that accrue in preheating air for machine air supply units and room heating and ventilating units usually amortize the economizers in a little over a year, thereby proving it to be a very worthwhile investment.

Recent Trends in Air Systems

1. Dew Cell Control

A number of mills have recently installed dew cell controls for regulating the recirculated volume of paper machine exhaust air. This regulation is of particular importance when machines are operated at varying speeds.

Under such conditions, the drying air picks up more or less moisture from the web. The air either contains an excessive amount of moisture, which can cause uneven drying and condensation on the hood ceiling; or the air is not carrying away as much moisture



Before and After:

Open-type hood is shown at left on 62-cylinder 140-in. machine at Sonoco Products prior to conversion to totally-enclosed unit. At right: same machine with new Ross hood. Following its installation, production was increased 10% and steam requirements reduced 7%.

as it should, which of course is uneconomical.

To properly proportion the amount of air that is recirculated under various speed conditions, a dew cell control is installed in one of the hood's exhaust outlets. This cell senses the moisture content in the exhaust air, and when it becomes too high the cell activates a motor that partially closes a set of dampers within the duct leading to the air replacement unit. This decreases the amount of exhaust air recirculated to the air replacement unit and increases the amount exhausted to atmosphere. As the moisture content falls, the dampers open, and a greater percentage of the exhaust air is recirculated.

2. Fourdrinier Wire Pit Exhaust

When hot stock is used (ranging from 110° to 130°F), the areas near the Fourdrinier wire become particularly uncomfortable, and to alleviate this condition, a wire pit exhaust system has been designed. The drive side of the pit is sealed from the wire to the floor, except for a duct opening. Air is exhausted through this outlet creating a flow of air from the tending-aisle side to the exhaust side, thereby improving comfort conditions in the surrounding areas.

3. Fourdrinier Wire Air Curtains

Air curtains at each end of the wire and along the sides are now being used to help control temperature and hu-

midity conditions in this area. The curtains are formed by high-velocity air blown upwards through pipe outlets. These air curtains confine the exhaust vapors and direct them to a false ceiling above the wire and to roof fans for discharge to atmosphere.

4. High-Pressure Calender Cooling

Advances in calender cooling include consoles for centralized control of nozzles that blow high-velocity air onto calender sections that may be running hotter than others. In the past, nozzles were regulated at the nozzle. Nozzles are spaced about 7 in. apart, and cooling air is circulated over refrigerated or water-cooled coils to lower its temperature.

Mill Installations: Benefits Received

At Abitibi Power & Paper Co. Mill in Iroquois Falls

One of the first companies to install enclosed hoods was Abitibi Power & Paper Co. Ltd., Iroquois Falls, Ont., Canada, and its initial installations involved three hoods on newsprint machines. The Ross air system included felt drying systems, Grewin systems and economizers.

At the time, one of the greatest unknowns was whether the closed hoods would be run as closed hoods. To take care of any eventuality, the fans, ducts and heating coils were designed to handle the large amount of air that would be necessary for open hood operation. However, from the day these hoods were installed, they have been run completely closed.

Benefits achieved may be summarized as follows:

(1) Steam consumption was re-

duced approximately 20% compared to what it was with open hoods without economizers. (2) Evaporation rate was increased 12%. (3) Helped increase machine speed approximately 300 fpm. (4) Heat loss through exhaust was reduced by 47%. (5) Approximately 40% less air was required. (6) Comfort was greatly improved in the machine room; radiant heat from the ends of the dryers was eliminated, and comfort was particularly improved in aislesways where operators were previously subjected to the radiant heat from dryer sections of machines on both sides of the aisle.

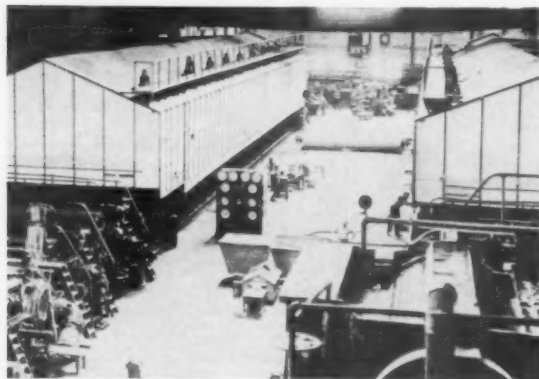
At Sonoco Products Inc. Mill in Hartsville, S. C.

Another company that has achieved multiple benefits from its totally-enclosed hood is Sonoco Products Inc. in Hartsville. This company replaced

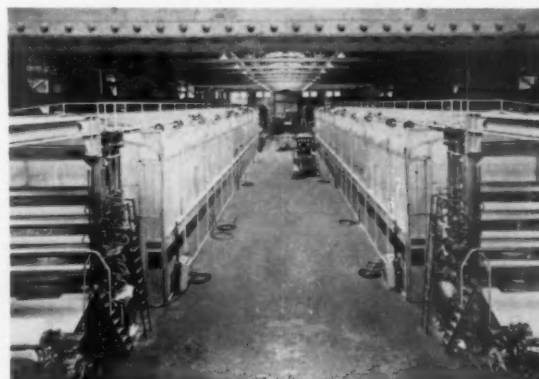
an open-type hood on a 62-cylinder, 140-in. machine used in producing kraft paper for corrugated board. The old hood was removed and the new one installed during a two-week summer shut-down, thus avoiding downtime expressly for the changeover. The only change made during the shut-down was the switch of hoods and corresponding reduction of exhaust units.

The following benefits were achieved:

(1) Production was increased 10%. (2) Steam requirements were reduced 7%. (3) Variation in moisture content across the web has been reduced; formerly this variation was at times more than 2% with the result that the paper would pull the finished corrugated board out of shape and also give rise to gluing problems; variation is now usually less than 1%. (4) Exhaust fan horsepower requirements have been reduced more than 40%. (5) Working conditions around the ma-



Before and After:



Machines at Bowaters Mersey Paper Co. Ltd., where production was doubled with the installation of totally-enclosed hoods. At left, the units were producing about 250 tons per day with open-type hoods. With new Ross hoods (r), production is in excess of 500 tons with no alterations to existing process air equipment.

chine have been made more comfortable due to lower wet and dry bulb temperatures.

Bowaters Mersey Paper Co. Ltd. Liverpool, Nova Scotia, Mill

Bowaters Mersey Paper Co. Ltd. has replaced open hoods with closed hoods on two machines originally installed at Liverpool in 1929. Each machine is equipped with 47 paper dryers having 60-in. dia. and 232-in. face, one 30-in. dia. dryer with 232-in. face, one 60-in. dia. sweat dryer with 232-in. face, six felt dryers have 48-in. dia. and 232-in. face, an open type headbox and first and second presses.

Specific data is available from this company indicating the degree of comfort improvement provided by the totally-enclosed hoods. While in most cases improved comfort is mentioned as an advantage gained, figures indicating the extent of improvement are not generally available.

The tables indicate before and after humidity and temperature conditions in the drive aisle of one machine, in the machine room center aisle and in the machine basement. Readings were taken opposite nine stages in the paper production process. Humidity (H) is in grains/lb. of dry air and temperature (T) is dry bulb temperature in °F.

The reduction in humidity in the drive aisle (as much as 55%), coupled with the reduced temperatures (as much as 13%), indicates the tremendous improvement in comfort conditions effected by the closed hoods. Conditions are almost as much improved at the more distant center aisle of the machine room, and in the basement the greatest improvement of all is indicated. At the couch basement humidity was reduced from 250 to 165 grains/lb. of air, a reduction of 66%, and temperature was reduced from 132° to 85°F., a reduction of 37%.

It should also be noted that these conditions are achieved with existing process air equipment that was designed in 1930 for a paper production rate of 250 tons per day on the two machines. This same equipment, with no change in design, capacity or alterations to existing equipment, other than normal maintenance, is adequate, with closed hoods, to meet the process air requirements for the present rate of production in excess of 500 tons per day for the two machines. Equipment originally installed will also be adequate for machine speeds in excess of 2000 fpm.

There is no doubt whatsoever that equivalent room conditions and maintenance of the economy of operation

Table I: Before-and-After Humidity Conditions

		Breast Roll	Couch	2nd Press	Paper Machine			Cal- ender	Wind- er	Fin- ish- ing R'm
					1/4	1/2	3/4			
Drive Aisle	H Before	155	174	172	153	146	102	86	92	77
	H After	134	98	78	74	75	67	67	65	63
	H Reduction	21	76	94	79	71	35	19	17	14
	% Reduction	13	44	55	54	48	34	22	19	18
Machine Room Center Aisle	H Before	164	155	155	144	116	86	83	80	80
	H After	124	106	76	77	74	72	62	62	62
	H Reduction	40	49	79	67	42	14	21	18	18
	% Reduction	24	32	51	46	36	16	25	22	22
Machine Basement	H Before	—	250	240	154	134	118	125	93	96
	H After	82	85	85	66	83	82	73	69	65
	H Reduction	—	165	155	88	51	35	52	24	31
	% Reduction	—	66	65	57	38	30	41	26	23

Table II: Before-and-After Temperature Conditions

		Breast Roll	Couch	2nd Press	Paper Machine			Cal- ender	Wind- er	Fin- ish- ing R'm
					1/4	1/2	3/4			
Drive Aisle	T Before	90	96	97	96	97	93	88	80	80
	T After	92	95	88	87	86	81	76	77	72
	T Reduction	-2*	1	9	11	12	12	12	3	8
	% Reduction	-2*	1	9	9	11	13	14	4	10
Machine Room Center Aisle	T Before	94	95	95	103	100	88	86	84	81
	T After	87	91	88	90	89	87	81	78	76
	T Reduction	7	4	7	13	11	1	5	6	5
	% Reduction	7	4	7	12	11	1	6	7	6
Machine Basement	T Before	—	132	117	95	103	96	93	81	83
	T After	84	82	82	88	80	78	77	76	75
	T Reduction	—	50	35	7	23	18	16	5	8
	% Reduction	—	38	30	7	22	19	17	6	10

*Attributed to spill from wire pit. Headbox stock temperature was 110°F. during the "before" test, 115°F. during the "after" test.

that now exist could not have been possible without the installation of closed hoods. In the first place, the capital outlay for additional process air equipment to obtain equivalent room conditions, coupled with necessary alterations to the building structure to accommodate such equipment, would have been greater than the total installed cost of closed hoods.

Secondly, the specific steam consumption in pounds of steam per pound of paper dried, or pounds of steam per pound of water evaporated,

would also be greater without closed hoods, due to the larger volume of air to be heated to exhaust-leaving temperature.

Thirdly, the horsepower required to handle open hood volumes would have been increased by more than 40% over current horsepower.

Thus, air system modernization pays for itself many times over and in fact is essential to higher machine speeds, greater production and those economies so necessary in combatting ever rising operating costs.

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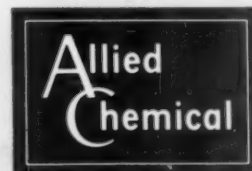
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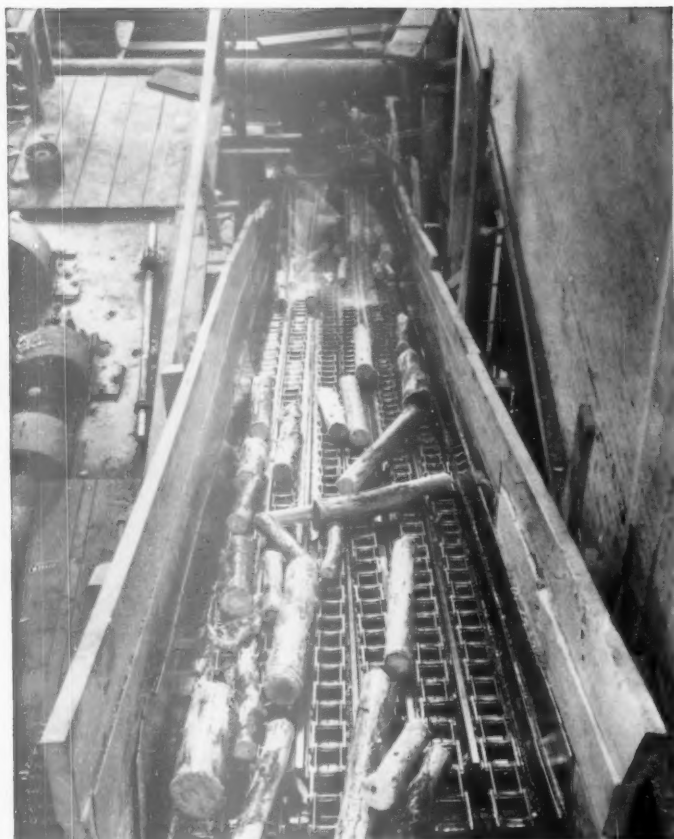
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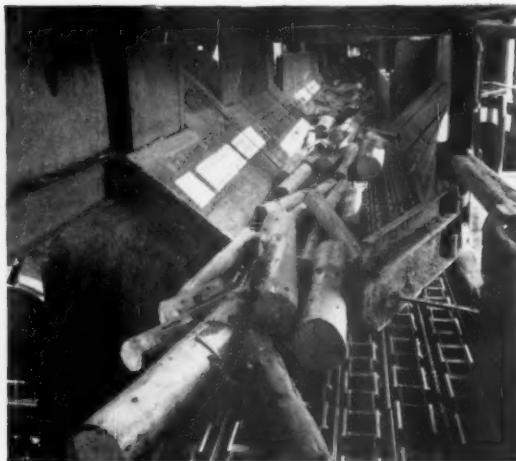
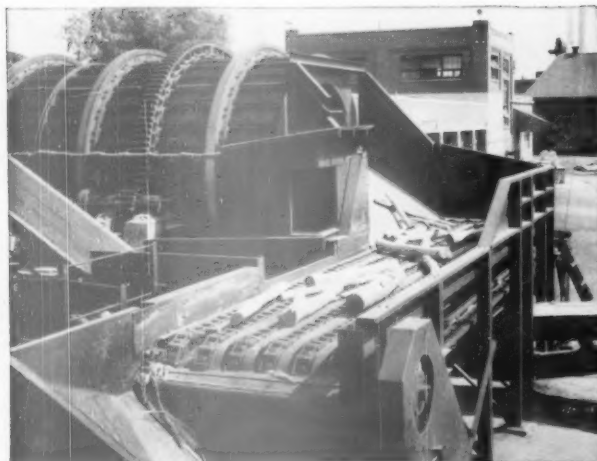
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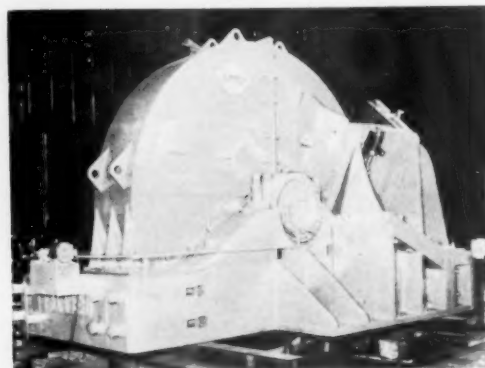


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Alaska Logging Methods

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—Sitka
● Alaska Lumber & Pulp Co. Inc.'s purchase of U.S. Forest Service timber for its new mill at Sitka (see story elsewhere in this issue) is predicated on a 50-year sale covering practically all of Baranof Is. and half Chichagof Is. The sale guarantees removal of 5% billion ft. in 50 years, allowing 105,000,000-ft. per year annual cut. The mill's remaining wood requirements will be obtained by purchasing logs from individual contractors, who will in turn make their own timber purchases on the Tongass National Forest,

according to Archibald M. Byers, ALP woods mgr.

The contract differs from the Ketchikan Pulp Co. contract chiefly in that it is more intensively spelled out as far as U.S. Forest Service control is concerned. ALP and USFS crews work together, but the Forest Service has final say. Logging programs are worked out cooperatively.

ALP has been conducting intensive forest surveys of the sale area for two years and will continue this work for two more years. This is a 2% cruise made by the company's forestry and engineering staff. Aerial photos made during 1957-1959 on the major sale areas are used for determining what timber is available in each of the planned logging units. USFS has been conducting a broader (less intensive but extensive) survey determining the timber included in the various working circles, each working circle consisting of several logging units. Long-range management planning for working-circle timber plots is carried out by Forest Service personnel.

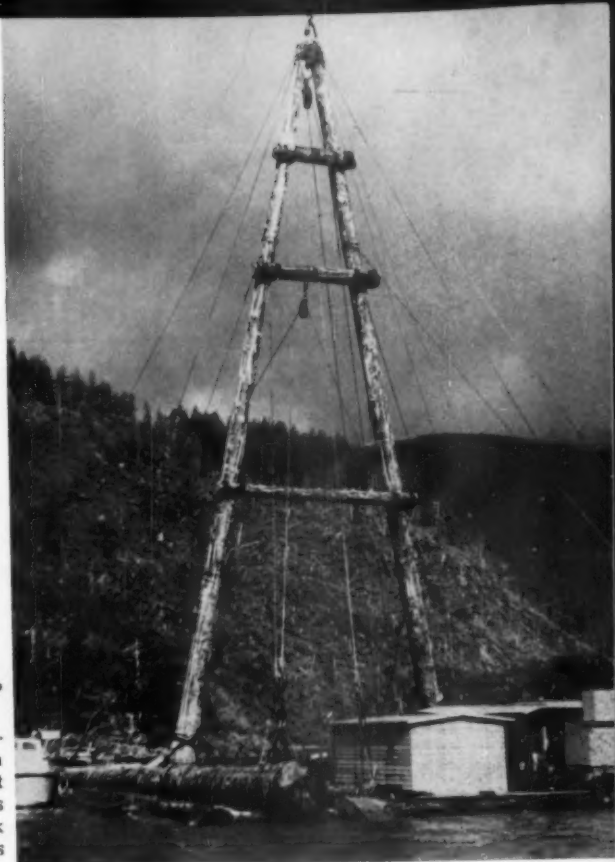
Set-aside factors—including salmon streams, watersheds, recreation areas, scenic areas along tourist boat routes and historical attractions—have been specifically reserved from cutting by contract specifications. These factors have been incorporated into cooperative logging plans worked out for each cutting unit.

To determine what effect this timber harvesting will have on the area's forests, PULP & PAPER called on Ray Karr, USFS district ranger at Sitka. He stated the stand now consists of old-growth trees, a rather stagnant mature-overmature type forest. Through harvesting, the area will be converted to thrifty, productive stands of young trees.

According to Mr. Karr, the replacement forest is expected to grow at the rate of almost 1,000 bd ft. per acre per year on the better sites; about half that on the poorer sites.



DELINEATION OF ALASKA LUMBER & PULP'S TIMBER ALLOTMENT in relation to location of (1) pulp mill, (2) company's own logging operation, contract loggers (3) J&H Logging Co., (4) Island Logging Co., (5) Schafer Logging Co.

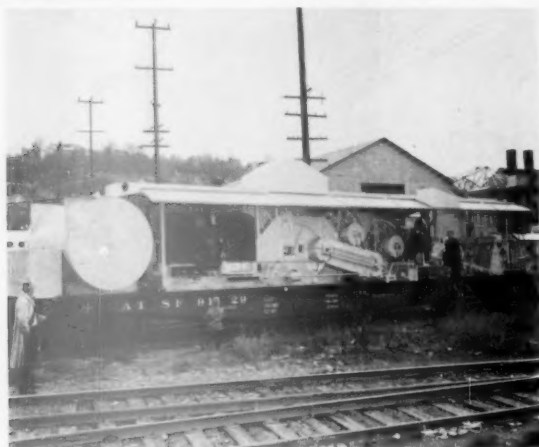


FLOATING YARDER IN ALASKA logs from sea level 1800 ft. up mountainside. Shoreline operation at Katlian Bay for new Sitka mill shows logs being yarded directly from woods to tractor equipped float landing. Logs are bundled here and rafted. The yarder is Washington Iron Works 219 slackline unit. Twin 6-71 General Motors diesels power it through Twin Disc torque converters and Western Gear Torgmaster. The yarder is 100 ft. high.

Harvesting present timber thus has two beneficial aspects for the region: first, it provides raw product wood for local industry and world commerce; second, it converts the forest stands (now producing little or no increment) to thrifty stands contributing from 500 to 1,000 brd. ft. per acre per year.

Logging during the first 10 years of the ALP contract is confined to the northern portion of Baranof Is., an area of about 450 sq. mi. Logging plans call for clear-cutting by staggered settings. Hence the harvested areas will be tributary to adjacent timber stands that serve as a seed source and as fire protection. Clear-cut areas are restricted to a maximum of 1 sq. mi. and will average out at about half this size, says Mr. Byers.

Hemlock accounts for about 60% of the stand volume, spruce 3%, yellow cedar 3%. The hemlock averages 20-24 in. dbh., 120 ft. total height, 100 ft. merchantable height. Spruce in the sale area ranges from about hemlock size up to a maximum of 8 to 9 ft. in dia. and to 225 ft. in height.



WORLD'S LARGEST DIESEL-POWERED SKIDDER will transport logs from mountain slopes to salt water. To be float-mounted, the 10-drum, 135,000-lb. unit can reach out 3,200 ft. for logs.



YARDING TURN OF LOGS DIRECTLY to floating landing. While returning chokers to the woods for yet another turn, Caterpillar tractor rolls logs off landing into the water.

The company is endeavoring to develop Japanese markets for the cedar logs, so they can be exported as deck cargo on the pulp-carrying ships, according to Mr. Byers. Although too early to positively ascertain results, it is now anticipated this pioneering work will result in profitable outlets. If so, it would eliminate market problems previously associated with the manufacture of pulp in Alaska.

Mill Log Supply

Logs from which Alaska Lumber & Pulp will derive its 340 daily tons of alpha cellulose are obtained from the company's own logging operation, from contract loggers, and by purchasing logs from independent operators. Regardless who does the logging, all the timber comes from the Tongass National Forest. Timber harvested by contract loggers and by the company operation is obtained under the ALP-USFS long-term purchase; market logs are from stumpage independently bought from USFS by the operators concerned.

The mill's annual log supply for the first two-year production period, according to Mr. Byers, is predicated on obtaining 20 MM ft. from the company operation, 60 MM ft. from contract loggers and 60 MM ft. of purchased logs—a total of 140,000,000 ft. per year.

Of the timber harvested under the long-term ALP contract, about 25% is to be handled directly via water by float-mounted equipment, 60% to be

truck-logged to the water and 15% handled by crawler tractors or rubber-tired swing machines, whichever proves best for removing the timber concerned.

Except for a timber tract now being salvage-logged, logs will be transported to the mill site by water exclusively. This lone exception concerns several million feet to be removed from the area surrounding Blue Lake, which is to be inundated by water after the high-stage dam construction is completed late this summer. Salvage logs are truck-hauled over the road originally constructed to facilitate work on the water supply system. These logs are dumped into Silver Bay adjacent to the plant.

A combination of extensive waterways and rugged land areas make water transport and handling of logs a "natural" in this part of the world. The significance is such that the decision as to how to log any specific area is predicated on, "What is the most practical means of getting logs into the water?" A solution is to yard directly to the water using water-based gear.

The extent to which this logging may be most appropriate is indicated by the fact that the ALP timber purchase area has, according to an estimate made by Mr. Karr, at least 2,000 miles of shoreline. This, coupled with the fact that merchantable timber stands are largely confined to an elevation of less than 700 ft. above sea level, gives some indication of the direct-to-water logging potentials.

How ALP Does Its Logging

The company now does its own logging in the Katlian Bay area, some 15 miles north of the plant site. This is a "water show," even to housing and transport of personnel. The camp consists of a two-story barge structure—cook house and mess hall on lower level, crew quarters above—and a row of floating eight-man bunkhouses. This barge unit served an important role in feeding and housing personnel in the early stage of plant construction and, was later assigned to the woods division.

Known as "the shoreline operation," company logging went into production last August. It involves yarding with a floating A-frame unit carrying a model 219 Washington Iron Works slackline yarder powered by twin 6-71 GM diesel through Twin-Disc torque converters and Western Gear Torqmaster. A slack line rigging system is normally used, but high-lead yarding (usually via the Grabinsky type set-up involving hanging a block from the haulback line to provide additional lift) is also employed where conditions make this more practicable.

Between the yarder float—a 90- \times 120-ft. raft structure made of 90-ft. logs—and the shore are two other floats—an 80- \times 90-ft. landing (also made of 90-ft. logs) and a rectangular stiff-leg extending from the landing float to shore. This tandem float arrangement dissipates the heavy yarder-to-float pulling force by contact transmission to the landing float, to stiff-leg, to

ALASKA LOGGING METHODS



FLOATING LOGS FROM LANDING are positioned inside looped line (above workman) from three-drum Willamette winch. When loop area fills, logs are drawn into tight bundle.



ON-THE-SPOT LIVING AT KATLIAN BAY, where this floating camp houses woods crew. Eight-man bunkhouses (foreground) are serviced by two-story barge containing kitchen, mess hall, living quarters.

shore. Guylines angling to shore prevent the floats from drifting off line-up position.

Logs are skylined to the landing float from distances ranging up to 1,800 ft. There they are released from the chokers ready to be pushed off the landing into the water by a Caterpillar tractor while the yarding gear returns for another turn of logs.

Logs discharged from the landing floated to an assembly area adjacent to the yarder float and parbuckled into bundled form, wrapped and bound by steel strapping. The completed bundles are transported to nearby rafting area. Here the bundles are accumulated and formed into rafts of approximately 350,000 brd. ft. each. An average size bundle contains about 25 logs aggregating 5 to 6 M brd. feet. Logs are bundled for safety and economy in transport (towing rates on bundled logs are at lower per M rate basis than flat-rafted logs) and for economy of space.

Production Increasing

ALP is still in the process of building up its Katlian Bay logging operation to its planned capacity, according to Mr. Byers. The company may also establish a truck-logging camp of its own.

Production at the existing camp will be upped materially in the near future when the logging unit now under construction gets into operation. This is a Washington "Flyer"—"the biggest diesel skidder yet built," says Mr. Byers,

which will be float-mounted and used to yard logs directly to a landing float, much as the slackline yarder is now doing. The new machine will have maximum reach of 3,000 ft. and a normal use range of approximately 2,400 ft. Skidding power is to be provided by twin 6-110 GM diesels with Twin-Disc converters and Western Gear Torquemasters.

This behemoth logger is to operate along the south edge of Katlian Bay opposite the slackline machine working along the northern shoreline. Production of the two machines is expected to total 20 MM ft. per year—8 MM for slackline, 12 MM for skidder.

Floats for supporting heavy logging components such as yarders have to be large and rigid. At least one now in use in Alaska embodies approximately 750,000 brd. ft. of logs. In addition to this large amount of timber, a lot of man-hours went into assembly and construction work. By innovation, the ALP woods division circumvents the use of a large quantity of timber for floats. Besides, in-use results have been found better than normal.

Instead of building yarder floats entirely of logs, Styrofoam "logs" are incorporated under the log framework to provide buoyancy. Styrofoam, a Dow Chemical product of expanded polystyrene plastic, has buoyancy of 60 lbs. per cu. ft., about double that of green coniferous logs of the area. Besides, Styrofoam installed for this use is permanent as far as construction and floatability factors are concerned.



INCREASED BUOYANCY RESULTS FROM use of light-weight Styrofoam "logs" beneath log-frame floats of yarders. Buoyancy is increased 60 lbs. per cu. ft.; 50 under slackline unit; 75 under new skidder.

The cellular plastic "logs" used for this purpose measure 9 ft. × 24 in. × 40 in.—50 of them under the slackline yarder float, 75 for the skidder float. A little quickly-applied arithmetic, applying a fresh-water buoyancy factor, indicates that each of the 60-cu. ft. cellular plastic logs exert, 3,600 lbs. of lift when installed on the underside of a yarder float. At this rate, the lift provided by



Byers



Esselstrom



Liimatta



Geren



Francis

ARCHIBALD M. BYERS, woods mgr., was in charge of logging operations for Alaska Pine & Cellulose on northern Vancouver Is. prior to joining ALP more than two years ago; ALLEN N. ESSELSTROM, asst. woods mgr., has spent more than 25 years in logging in Oregon and northern California, was logging supt. for Gleason Logging before joining Alaska Lumber & Pulp; J. LIIMATTA, chief forester, was formerly in the same post at Ketchikan Pulp; WALTER GEREN, forest engineer, was previously logging supt. for Oregon Pulp & Paper; JIM FRANCIS, logging supt., Shoreline operation, was formerly a partner in Romberg & Francis Logging Co., North Bend, Wash. Not shown but vital to the over-all woods operations are: OLA HARANG, master mechanic; WALTER TRENT, raft dispatcher (Sitka office); ARVID KARVONEN, slackline foreman; JERRY GILLIES, asst. forest engineer, and Foresters RUSSELL FREDSELL, TED SMITH, KINJU MIYAKE, DICK HERRING.

Styrofoam to the skidder float will total 135 tons; 90-ton lift for the slackline.

Two cruisers are assigned to the woods division. The *Sitka Spruce*, a 63-ft. vessel formerly of air-sea rescue service, is used as a base camp by cruisers doing the timber inventory survey work. *Sitka Cypress*, a 30-ft. express cruiser with 28-knot top speed and 20-knot cruising speed, is for administrative travel. Camp boats include a 36-ft. personnel carrier and three outboard-powered skiffs. Two Weldit boom boats are being obtained to facilitate the handling of logs at the Katlian Bay operation.

Contract Logging

At present, ALP has the services of four contract logging firms and anticipates getting three or four more on the scale area by early spring.

Island Logging Co., owned by Lowell Marsh, is logging 20 miles from the mill at Krestoff Is. Production here involves yarding with an A-frame unit (float-mounted) similar to ALP's slackline job only smaller. Output is estimated at 10 MM ft. per year.

J. & H. Logging Co., a truck operation at Nakwasina Sound 20 miles from the mill, will have 7 miles of road in four years. Operated by M. B. Jones and family, this high-lead organization is rated at 20 MM ft. per year.

Albert Schafer, Kruzoff Is., logs about 5 MM ft. per year by ground skidding direct to water by tractor and bulldozing the logs into the water for handling and rafting. This operation is located 24 miles from the ALP plant.

Kramer Logging Co., owned by

Clarence Kramer of Sitka, is removing timber from the Blue Lake reservoir flood area and hauling direct to mill by truck. This lake operation started last October and will be completed by August. Kramer Logging is expected to provide the mill with 27 MM ft. of logs before the end of 1960. This combination logging operation uses tractors, high-lead and an A-frame unit consisting of a double-drum tractor set-up mounted on a small float. Both Kramer and ALP equipment is used on this operation. ALP is buying a large rubber-tired log-handling machine to be used on the Blue Lake job.

Except for the one contractor hauling directly to the plant site, all the logs are bundled and rafted at the point where they enter the water. These rafted bundles are towed from point of origin to the sorting area or to any of several storage areas located in protected tide flats, where logs dry off intermittently as a result of rising and falling tides. This protects the logs from teredo damage.

The sorting area at Herring Cove is a 1-sq. mi. protected area located 1 mi. from the pulp mill. This sorting area is equipped with anchored booms and sorting pockets and has capacity for 7 to 8 MM ft. of flat-rafted logs. Here the bundles are broken down, the logs sorted into flat rafts and sealed by Puget Sound Scaling Bureau ready for delivery to the mill pond.

The towing of rafts is by independent towing firms. Tows range from 10 to 25 miles for the contract and company rafts, up to 200 miles for purchase rafts.

From Herring Cove on to the mill,

the logs are under jurisdiction of mill management rather than the woods division. The mill has a tug and three Weldit boom boats for the transport and handling of logs at the mill pond, in the sorting area and in between these two points.

Radio Communications Essential

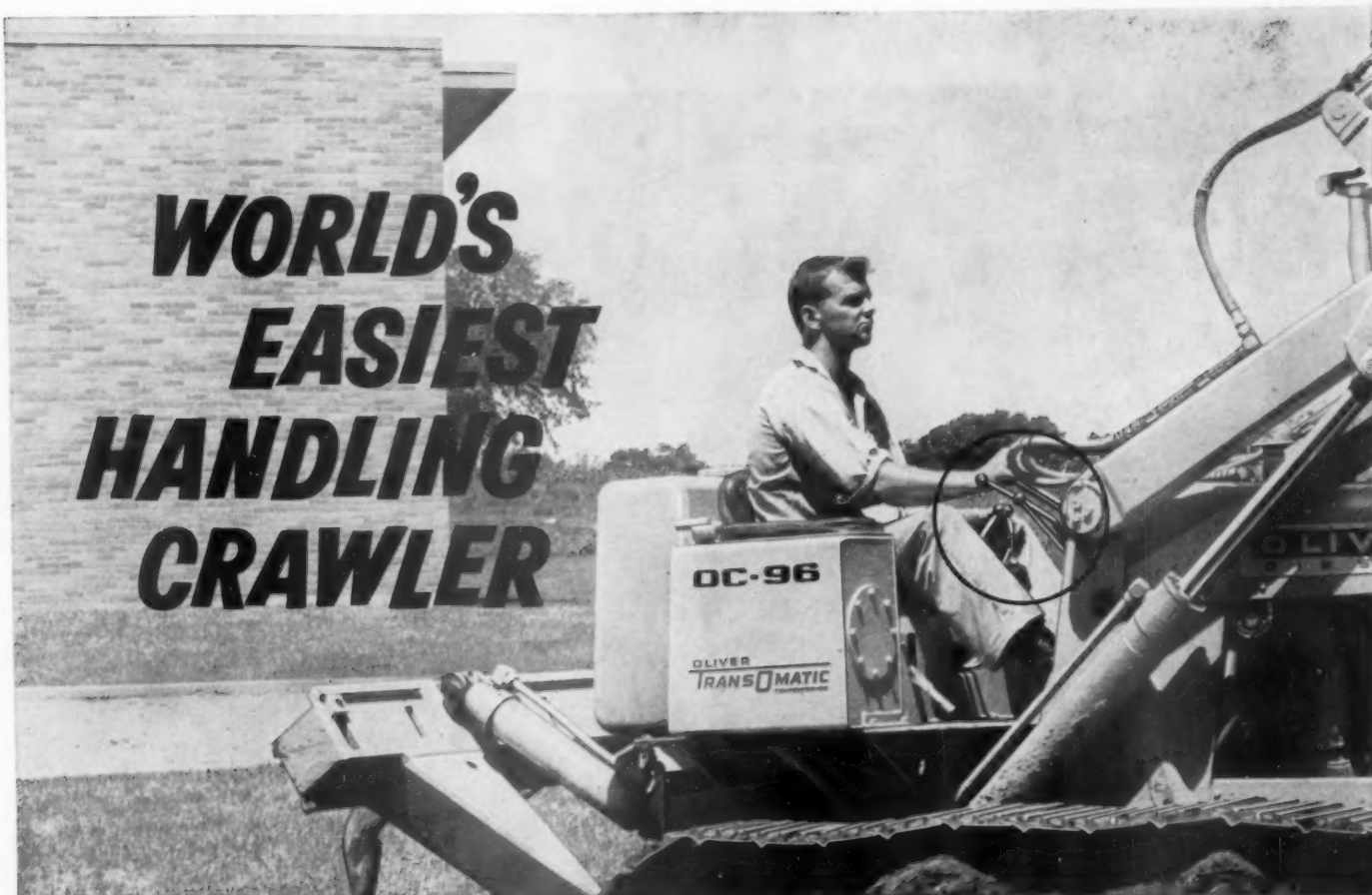
The isolated plant setting, scattered location of woods operation components and the widely ranging forestry, engineering and log-transportation activities have the making of significant communications problems. To compensate for these factors, ALP has two FM radio networks, one on the 157-mc. band, the other on 49 mc.

Two 340-watt base stations—one located in the plant administration building and the other at the ALP Katlian Bay logging camp—on the 49-mc. band are used by the woods division for long-distance communications (up to 100 miles). Three mobile transmitter-receiver units were originally assigned to this frequency. The other network currently has a 60-watt base station and three mobile units for use at the wood plant, mill pond and at the Herring Cove log sorting-rafting area.

Ten mobile units (157-mc.) previously used by Sitka Builders are being transferred to ALP use as they are released from construction.

Standard mobile AM marine frequency radio units of 60-watt capacity are used on ALP boats (Cypress, Spruce, Logger, Babe). The Cypress and Spruce are also equipped with transmitter-receiver units of the 49-mc. band.

WORLD'S EASIEST HANDLING CRAWLER



62 gross engine h.p. with 1-yd. loader

Take the controls of a new Oliver Trans-O-Matic OC-96 Loader —and "let the tractor do the talking!"

Power shifting plus power steering (with three types of turns) makes the startling difference! The OC-96 is so easy to operate, it simply cannot be compared with older designs on this count—or any other!

You sit in a spacious, foam-rubber seat (offset for ideal visibility)...have full-freedom leg room in the wide, flush-deck compartment.

As for the controls, they're practically "in your lap." Levers for power steering, power reverse and power shift are placed directly ahead of the seat. Your arms are in "resting" position all the time. To brake or foot-steer, pedals do the job just as effortlessly.

Easy operation, indeed! The *easiest* you ever had—plus.

NEW! 3 types of power turns—The only crawler its size giving you counter-rotation turns for about-faces in the tractor's own length—also spot turns and gradual turns.

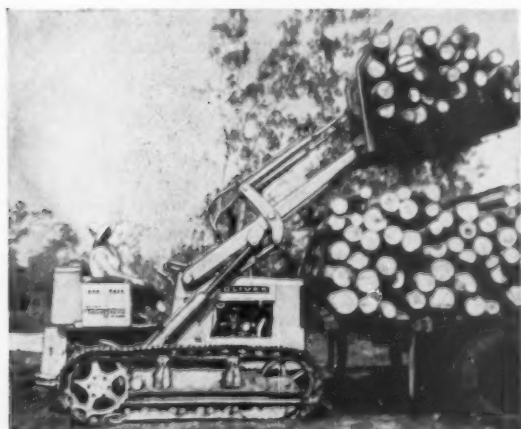
NEW! Power shifting—Shift from forward to reverse instantly, on the go. No clutching, no gear-clashing with Oliver's all-hydraulic Trans-O-Matic transmission. Four speeds in high or low range—forward to 6.05 m.p.h., backward to 8.07 m.p.h.

NEW! Torque converter—The OC-96 has heaviest-duty torque converter (not automotive kind)—delivering full engine power for digging and crowding in fastest non-stalling operation. Advanced 62 gross h.p. diesel.

NEW 1-yd. loader design—See how the OC-96 is an integral tractor-loader minus high, hung-on parts and cross members. Loader side pedestals are actually part of the tractor for low profile, high stability, finest visibility and safety. Fast breakout, greatest dumping reach. No other its size has such rapid work cycle—is so rapid-reversing.



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Whether you're snaking logs in and out of tight spots or handling logs with the specially designed logging fork, you can profit from the faster work cycles you get with an OC-96.

Choice of turns and power shifting turns cuts time and working distances. You get more work done for less money—easier and faster than ever before. Find out for yourself how an OC-96 can benefit all your loading operations. Ask for a work-test on your job today!



NEW CATALOG—"must" reading for cost- and comfort-conscious tractor users.



HOW ONE-MAN-OPERATED

TD-9 Skid-Grapple replaces TWO other rigs and FOUR helpers

- for Suwanee Longleaf, Fargo, Georgia

Even in muddy woods, Suwanee Longleaf's TD-9 Skid-Grapple easily picks up, carries, and eases a big payload of tree-length pulpwood onto the truck! Top grab-arm is controlled by third-valve of the hydraulic system—standard equipment of the International Drott!

It took two loading machines and four helpers—for Suwanee Longleaf, Fargo, Georgia, to load pulpwood. That was before they switched to the International Drott TD-9 Skid-Grapple.

Now their "loading department" is one man on the TD-9 Skid-Grapple—and does he have it easy!

Suwanee logs "tree-length" slash and longleaf pine for pulpwood—averaging 50-foot lengths, and 900 lbs per log. The TD-9 Skid-Grapple handles three to seven logs per pass. And the outfit loads out a truck with 8½ to 9-cord loads within 30 minutes!

A big load every pass!

You simply slide the Skid-Grapple's lower prongs under the wood. Then, clamp onto the logs securely with the exclusive top grab-arm. No more one log at a time "juggling" with "end tongs" or "grabs." No more damage from "A" frame rigs banging up trucks or injuring workers.

You have the hydraulic power, the "reach," and positive safe load control to pile high onto trucks.

Separate top grab-arm control lets you spot-place each grapple-full with ease!

Compare your pulpwood or saw-log loading costs to International Drott Skid-Grapple "production-line" efficiency. Measure the advantages of streamlining your logging, loading, and skid-road building with the same basic outfit. See how exclusive shock-swallowing Hydro-Spring protects performance. See your International Drott Distributor for a demonstration of the size of Skid-Grapple you need!

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin



INTERNATIONAL
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MAN-MADE FORESTS such as this hold the key to the future of the timber resource, according to Mr. Todorski, who draws from his early life in Poland the ideas and ideals of woods conservation.

Old Polish Customs Form Basis of New Approach to Conservation of Forests

By Z. TODORSKI
Windsor Mills, P. Q., Canada

● Children today regard the forest as if it were a factory producing certain commodities to which access is limited only to those who cut the trees. Such policy leaves thousands of acres bare, since it is cheaper to return the land to its own resources than to replant the timber.

If we are not to wake up one day and find all the beautiful forests vanished, (in which case at least one generation would be deprived the necessities of life), we should put a sound reforestation program to work at once. It is desirable to start planting trees by the millions. We should not fail to educate the young generation in the art of preservation.

The Holiday of the Forest was an annual celebration in the Poland of my school days. Children were encouraged to stage shows honoring timber as an invaluable national resource. There were verses to the benefits that derive from the forest: wood for building houses; logs for manufacturing pulp; protection for wildlife; flood control; and conservation of hydro-electric power.

Today, we are inclined not to recognize the wealth of good that a nation derives from its forests, whose resource disappears quickly under the relentless attack of the power saw. It is easier to remove a tree than to replace it—philosophically, a tree has little value unless it is put to commercial use.

Action along the following lines is suggested to assure the continuity of an effective reforestation program:

1. Interest youngsters in reforestation by means of:—

(a) Proclaiming a Week-of-the-Forest in all schools. It should be devoted to forest education, including exercises in practical tree planting;

(b) Bestowing schools and colleges with tree farms to be cared for by the students.

2. Organize tree-planting camps for students. These can be organized by student unions themselves somewhat along the lines of English farming camps. Such camps provide opportunity to earn money, as well as to enjoy outdoor exercise and meet students from other colleges. They need not be subsidized.

3. Organize tree-planting camps for the general public. They should be operated by the government not only as a means of forest preservation, but as an opportunity for outdoor exercise.

4. Organize an association for the owners of private tree farms. City dwellers should be encouraged to purchase cheap marginal land for investment, and facilities should be provided to help such owners establish tree farms.

Such tree farms can be organized into regional units that can be cared for on a year-around basis by a government forester. Through the private owners tree farm association, provision for reforestation equipment can be arranged in cooperation with various commercial owners (the pulp and paper industry, for instance) or government agencies. Fire and pest control should be under government supervision.

Editor's Note—Of course, many of these recommendations of Mr. Todorski's are already being done, one way or another, in the important pulp and paper producing areas, and primarily by pulp and paper companies. But we felt it was interesting to read his views based on his European experiences and some European variations of practices here.

Fire-Weather Cooperation in the Northwest

Action has been taken by the U.S. Weather Bureau and the U.S. Forest Service to strengthen fire-weather forecasts and their usefulness in forest fire-control work in Oregon.

The two agencies entered into a cooperative agreement designed to improve fire-weather service in the area covered by the forecasts. USFS, under the terms of the agreement, will employ a meteorologist to work with Weather Bureau fire-weather forecasters and provide quarters and other facilities in the Forest Service office in Portland.

Now that the meteorologist will be working in the div. of Fire Control, there will be greater opportunity for consultation between the agencies, according to J. Herbert Stone, regional forester.

Existing services provided by the Weather Bureau to other agencies, including private interests and the public, will continue as in the past. Forecasts, advice and other information issued by the project office will continue to be broadcast over U.S. Weather Bureau fire-weather radio frequencies.

APA Annual Meeting Preview

Noralyn process, coordinating forest management, efficient pulpwood logging by regions and latest equipment developments.

The American Pulpwood Assn. will hold its New York meetings at the Roosevelt Hotel this year instead of the Waldorf-Astoria Hotel.

The APA Forest Policy Forum will be held Monday evening, Feb. 22. Its theme will be forestry and the international significance of the Noralyn process which uses 100% hardwoods for newsprint. Developed by the Herty Laboratory, the process will be commercially tried at the Noralyn Paper Mills, Inc., Baton Rouge, La. The basic paper will be presented by Noralyn's Vice President John H. Ains-

worth. Invited to participate in a panel discussion are Dr. William L. Belvin, director, Herty Foundation Laboratories; P. A. Briegleb, director, Southern Forest Experiment Station, and A. G. Wakeman, president, Coosa River Newsprint Co.

The general pulpwood industry session on Tuesday, Feb. 23, will theme coordinating forest management with papers on operations research in logging; recreational uses of forest lands; forest protection and research and wilderness areas.

The annual meeting of the APA

technical committees will theme the most efficient logging by regions and will consist of reports of regional technical committee chairmen. The basis for being considered "most efficient" will be cords of pulpwood per man-day per year and consideration will be given to full-time producers using 12 men or less and producing more than 1,000 cords or more than that per year.

A second theme of the technical committees will be the APA engineers' reports with latest developments using slide illustrations.

M&O's New Chain Saw Safety Guard

Woodlands and safety personnel of the Minnesota & Ontario Paper Co., International Falls, Minn., have recently developed a new chain saw guard. It affords excellent protection, and exhaustive field use indicates it apparently does not affect production, says D. L. Eisenach, safety director. The guard protects the operator in all cutting positions as well as completely shielding the cutting bar in normal or idling position.

The guard has two sides and encompasses the saw bar when the chain saw is not being operated. Controlled

by a finger-operated lever, it is locked in place when the saw is not being used. By depressing this locking lever the guard swings either up or down approximately 90°. This allows for normal cutting or upper cutting. As the cut is being made the guard is held against the wood by means of spring tensioning.

The guard is made of aluminum and stainless steel. Overall weight is 4½ lbs. It protects the cutting chain as well as the operator as the saw is being transported from place to place.

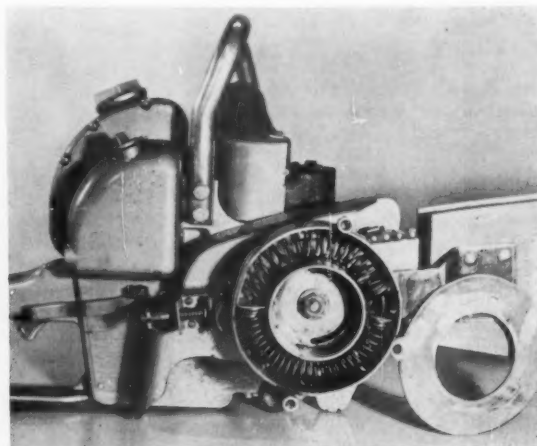
J. S. Hensel, forest engineer in the

Midwest for American Pulpwood Association, says: "It is possible that the use in part of some material such as fiber glass and the incorporation of spring housing with the drive casting would result in no appreciable increase in weight. If additional trials show promise an attempt should be made, perhaps, to work with chain saw manufacturers to incorporate this or some type of guard as standard equipment."

M & O estimated a chain saw company could incorporate the guard as standard equipment for \$10 to \$15.



POSITION OF GUARD during normal bucking. During upper-cutting spring-loaded guard would be on under side of log as chain and guard pass up through log.



CLOSEUP SHOWS saw guard's spring loading assembly and finger controlled locking lever. Spring tension holds guard against wood in all types of operations.



Fast, safe handling of logs and lumber

The "PAYLOGGER" line gives you the exclusive combination of genuine Drott hydraulic grapples on rubber tire mounting — 4-wheel-drive units with the same mobility and proven performance as the well-known "PAYLOADER" tractor-shovels.

"PAYLOGGER" sizes range up to 17,500 lbs. in Lifting Capacity — up to 13,000 lbs. in Operating Capacity. Drott grapples are available for all kinds of handling — big logs, small logs, pulpwood, lumber, and slash.

Built throughout for hard service, "PAYLOGGER" units feature powerful, reliable hydraulic systems of the closed, pressure-controlled type . . . better balance and stability due to low-and-close load-carry position. Power-transfer differentials, power-shift transmission, torque-converter drive, planetary axles, power-steer and 4-wheel power brakes are some of the important mechanical details that make "PAYLOGGER" units outstanding in tractive ability, ease of operation and dependability on any terrain.

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Advanced Logging Methods In Russia Are Described

A pamphlet, "Timber Skidding By Tractor in the U.S.S.R.", an excellent technical report, reveals that Russian tractors used in logging are in some respects more advanced than those available in other countries.

This 35-page document describes several types of logging that are practiced in Russia today in which crawler (track laying) tractors are the prime movers. It is complete with pictures, charts, tables, cost analyses, and conclusions of the advantages and disadvantages of the various methods of mechanized logging with the various types of crawler tractors in use in Russia.

Some Conclusions

Some definite conclusions reported in the well written report are that:

The semi-loaded position in skidding has advantages over skidding with trailing arches or ground skidding.

Tree-length skidding is more productive and economic than reduced or cut log skidding.

It also discusses preferred or suitable skidding distances.

Contents

There is an introduction, followed by:

1. Brief description of tractors used for timber skidding.
2. Timber skidding with specially designed skidding tractors.
3. Timber skidding with general-purpose tractors.
4. The use of tractors for road haulage.
5. Comparison of timber skidding methods.
6. Organization of operations at landings with tractor skidding.
7. Labor requirements and costs of logging with skidding tractors.
8. The use of combined felling and skidding machines.
9. Summary.

The conclusions reached in this report on Russian logging and equipment seem to generally agree with most conclusions that logging engineers in the U.S.A. have reached re-

garding tree-length logging, economic skidding distances, etc. with American equipment, says James A. Altman, forest engineer, American Pulpwood Association.

However, the Russian tractors are quite different from American machines and in some instances are more advanced than what we have available, he said.

The descriptions of the Russian tractors do not go into enough detail to make their operations clearly understood.

The Russian film "The Moving Forest", which is available from the U. S. Forest Service, Dept. of Agriculture, Washington, D.C., U.S.A., should be reviewed in conjunction with this pamphlet to make the operations entirely clear to anyone not familiar with the Russian methods, says Mr. Altman, but he added that the booklet seems to warrant the attention of persons concerned with mechanized logging.

Copies May Be Purchased

Copies of "Timber Skidding by Tractor in the U.S.S.R." may be purchased for 30 cents (U.S.) per copy from Sales Section, European Office of the U.S., Palais des Nations, Geneva, Switzerland.



Carthage-Dillon Chip Screens

Full-Floating, Circle- Throw Vibrating Type

Complete with woven-wire steel screens of suitable mesh, suspension frame with legs for floor mounting, feed tray, V-belt drive and motor base frame. Also furnished with suspension rods, springs, and brackets arranged for overhead installation.

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Du Pont's Dr. Brill Discusses Titanium Dioxide Use

Dr. H. C. Brill of Du Pont Co. recently addressed 173 Ohio TAPPI men on "The Retention of Titanium Dioxide in Paper" at a dinner meeting at Middletown, O.

Dr. Brill's presentation showed a nice balance of practical with theoretical considerations drawn from some 15 years of extensive experience with titanium pigments. He pointed out that titanium retention is largely due to agglomeration and mechanical filtration. He stated that the optimum particle size for optical properties is such that sufficient positive charge per unit of particle weight to produce good retention by electrostatic attraction cannot be imparted.

Dr. Brill then went on to discuss the various methods of controlling agglomerate size, such as: amount and concentration of the reactants; presence and amounts of dispersants such as starch; degree of agitation; time elapsed between pigment agglomeration and paper formation, and temperature.

Following the talk, Robert P. Green of The Champion Paper and Fibre Co., program committeeman for the meeting, presided over a lengthy question and answer period.

"100 Best Cartons" Will Be Announced March 23 in L.A.

The Folding Paper Box Association of America's 15th annual folding carton competition winners—"100 best cartons of the year"—will be announced March 23 during the Association's annual meeting at the Ambassador Hotel, Los Angeles. All entries will be on public display March 21 at the Ambassador, March 30-31 at the Drake Hotel, Chicago, and April 12-14 at the New York Coliseum.

All Welcome to World Meeting

No individual invitation is needed to attend the Fifth World Forestry Congress in Seattle, Wash., U.S.A., August 29 to Sept. 10, 1960. The congress is open to any private person or technician interested in forestry, forest conservation, forest recreation and the forest industries, says Dr. I. T. Haig, executive secretary of the congress, Department of State, Washington 25, D. C.

In 1870, newsprint was 14 cents per pound; in 1897, it was down to two cents.

IT'S *what's behind*
THE BALL THAT COUNTS!



...and Bituminous, too!

BEHIND BITUMINOUS is unlimited supply and ever increasing technology of utilization. *No other usable power source is backed by both these important characteristics.*

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North Carolina State Paper Curriculum Enrolls 55 Students on Scholarships

C. S. (Bill) Huestis, general manager of engineering and development of the Continental Can Co., which has mills in Port Wentworth, Ga., and Hodge, La., and is building a new one at Augusta, Ga., is the newly elected president of the Pulp and Paper Foundation, Inc., of North Carolina State College, Raleigh, N. C.

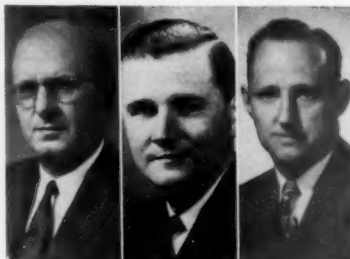
He succeeds Sture G. Olsson, president of the Chesapeake Corp. of Virginia.

Dr. C. E. Hartford, vice president and general manager of the Reigel Paper Corp., Acme, N. C., was elected vice president of the foundation. L. R. Ray, director of foundations at N. C. State College, was elected secretary; and J. G. Vann, N. C. State College, business manager, treasurer.

The foundation supports the curriculum in pulp and paper technology at the college.

Mr. Huestis said the foundation, incorporated in 1955, has received a total of \$280,780 in financial contributions.

"For the present year," he said, "the directors approved a budget of \$55,000 to support the curriculum. The bulk of this goes into a generous



Huestis

Olsson

Hartford

scholarship program designed to attract young men of outstanding ability into the school. This year 55 young men are enrolled in the pulp and paper program on foundation scholarships which range from \$300 to \$750 a year.

"Foundation support also supplements the salaries of the pulp and paper faculty," he added. "The foundation has established the Reuben B. Robertson Distinguished Professorship to recognize the important part Mr. Robertson, chairman of Champion Paper & Fibre Co., has played in the establishment of this program. This is currently held by Dr. C. E. Libby,

head of the pulp and paper curriculum. The college informs us that these salary supplements and scholarships make the difference between a mediocre and an outstanding program."

Dean Richard J. Preston of the School of Forestry told the group that there has been an 18% increase in enrollment in the Forestry School, which he said now has 418 students from 26 states and five foreign countries. He said the school's scholarship program has enabled it to attract highly qualified students including 90 who currently hold scholarship awards.

Papermakers, Printers to Join In Philadelphia Meeting

The Philadelphia area, birthplace of both papermaking and printing in U.S.A., will be the site of "The 1960 Philadelphia Conference of the Graphic Arts Industry." It will be held at the Benjamin Franklin hotel in that city, 8 a.m. to 5 p.m. on March 26.

Delaware Valley section of TAPPI is the sponsor. Members of the Philadelphia Litho Club and Phila. Printing Ink Makers Products Club also will participate.

In 1800, Matthias Koops prepared a book on papermaking materials, publishing the first edition on paper he had made from straw.

HOW TO DO IT

Adhesive Spray Eliminates Paste and Brush

St. Regis Paper Co.'s Bucksport, Maine mill uses this system to apply adhesive to roll wrappers and edge protectors. Roy Stairs, finishing room superintendent, says they use 10 gal-

lon containers of Angier adhesive, specification ALT-1105 RB, finishing Aetex. The adhesive then is applied with a Binks spray gun, a pressure system.

Advantages of eliminating use of paste and brush, says St. Regis, is that paste would get on roll ends, also the adhesive used gives a better and smoother seal, with no wrinkles.

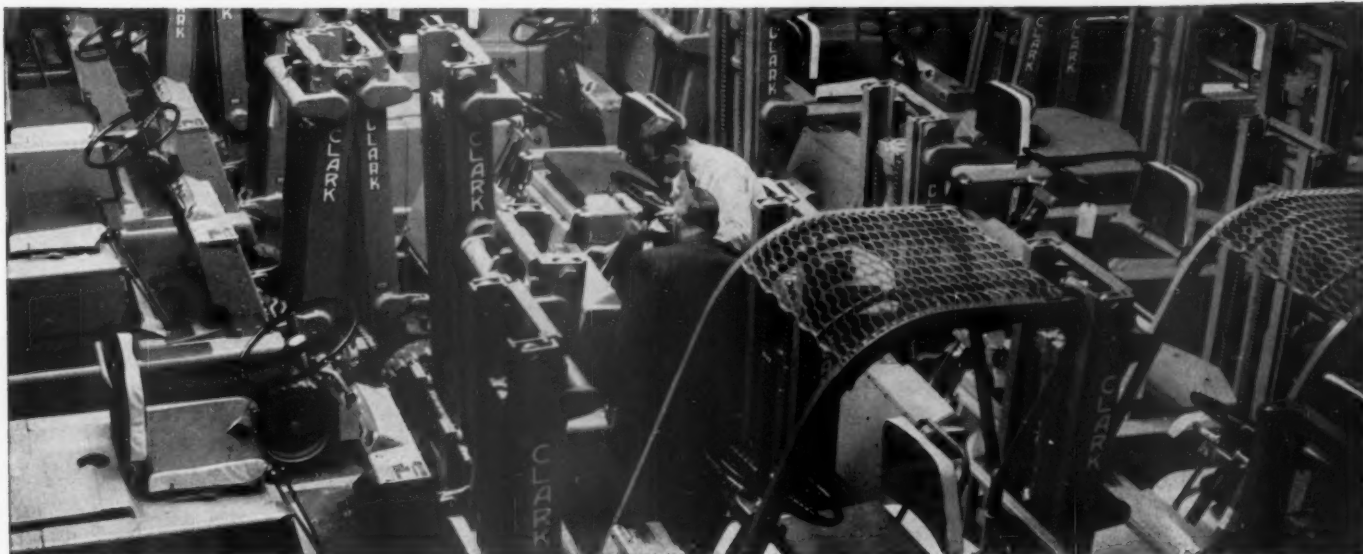


1 ADHESIVE IS SPRAYED on both ends of roll wrapper.



2 EDGE PROTECTORS are also sprayed with adhesive.

NOW! A full service rental program



*that saves capital,
eliminates maintenance problems...
rids you of truck downtime!*

A new, *flexible* rental system, enabling you to acquire all of your materials handling equipment, with full service arrangements, and *complete* maintenance coverage, is now available.

You save working capital! Without large outlays of capital you take immediate possession of all new materials handling equipment. Your present equipment is purchased at full cash value . . . your only actual capital expenditure is one budgeted monthly payment.

Downtime is eliminated! The Clark Rental System maintains a standby fleet of equipment for your immediate use when an emergency arises. The possibility of delays and losses to downtime are practically eliminated.

No more maintenance! Renting takes you out of the repair business. You no longer need to maintain a special repair shop, an inventory of parts, or special tools and equipment.

You rid yourself of hidden costs! The burden on your cost accounting system is reduced to the

bone. Clerical time, rising costs of inflation, and the high cost of using obsolete equipment . . . are all eliminated. One cost is your only cost.

A tailored system! A rental contract is prepared only after a thorough study of your specific operation is made. The flexibility of the Clark Rental System provides you with a *basic* program—without frills or extras—which keeps your handling costs to a minimum.

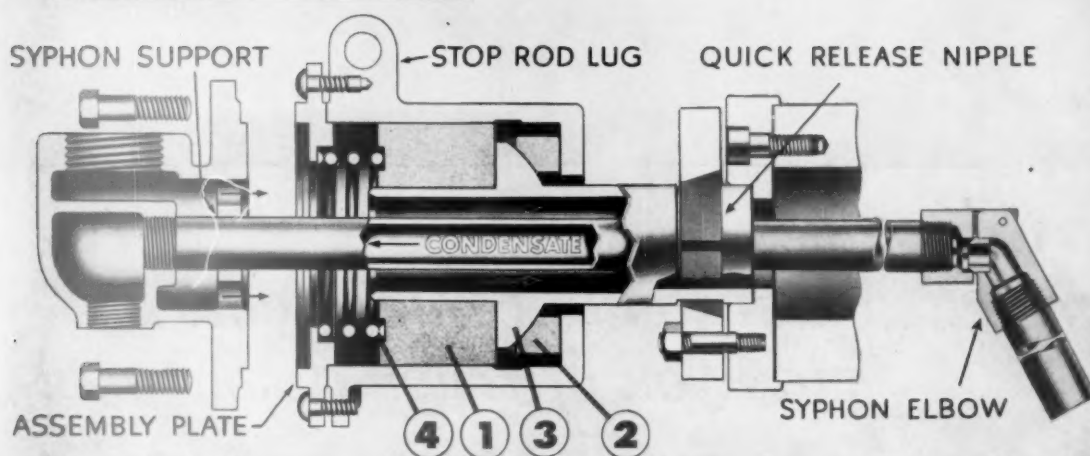
Compare the advantages for yourself! A booklet describing the rental program in detail, including a cost comparison chart, is available without obligation. For your personal copy, write or wire to the address below.



CLARK RENTAL CORPORATION
485 Lexington Avenue • New York 16, N. Y.

SUPER
Type SBP
Johnson
Joint
 with
 "Quick Release" Nipple

for Paper Machine Dryers . . .
with STATIONARY
Syphon Pipes



Only 4 Internal Parts

This simplicity of construction means fewer breeding places for trouble. The SUPER construction—which features rock-hard "Green Streak" seal rings and special Ni-Chrome plating—reduces friction and wear importantly. The "Quick Release" Nipple makes mounting, or inspection, a one-man one-wrench operation. The Syphon Elbow ends all the troubles of the unwieldy curved syphon pipes—hinges to pass right through the joint.

Like all Type S Johnson Joints, the Type SBP is completely self-supporting—needs no external supports of any kind. All in all it is a good example of why Johnson Joints are first choice in the paper industry. Type S Johnson Joints are available in sizes from 1/4" through 4", for both through-flow and stationary syphon pipe applications.

FREE TRIAL—We'll gladly furnish a pair of Johnson Joints for 90-day trial in your own mill. Write for information.

- 1 GUIDE**—Makes the joint self-supporting. It is of self-lubricating long-wearing carbon-graphite.
- 2 SEAL RING**—Also of carbon-graphite. Eliminates all packing and requires no lubrication.
- 3 NIPPLE**—Rotates with the roll, and seals against the ring.
- 4 SPRING**—Serves for initial seating only. In operation joint is pressure-sealed.



THE JOHNSON CORPORATION

849 WOOD STREET • THREE RIVERS, MICHIGAN

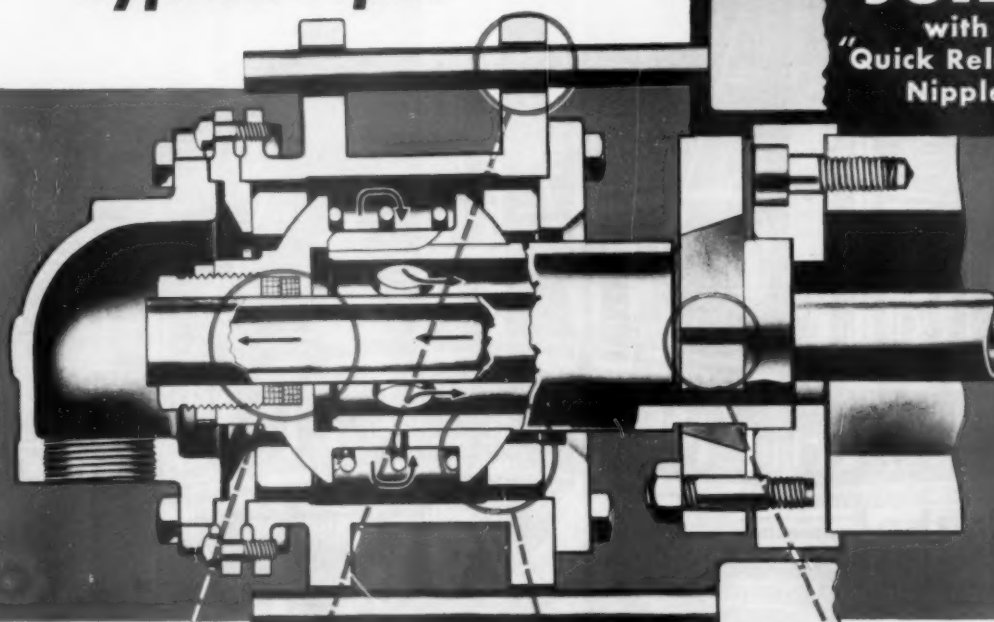
Rotary Pressure Joints • Direct Operated Solenoid Valves

.. and for Paper Machine Dryers with **ROTATING** Syphon Pipes

SUPER
Type L-N

**Johnson
Joint**

with
"Quick Release"
Nipple



Best Design Yet

Rotating syphon pipe does not rotate in the packing; thrust collar, nipple, packing gland and syphon pipe all rotate together as a unit. Joint needs no lubrication or adjustment. Time-proved construction has only a few simple parts—a design which thwarts trouble, permits easier field servicing. Assembly plate provides ready access to syphon pipe. Type L-N Johnson Joints are available in sizes from 1/2" through 8".

Floating Action

Simple rod supports carry all the weight of the body and connections—permit the rotating assembly to "float" freely inside. Can be adapted for machines with open or enclosed gearing.

Easy On . . . and Off

Johnson "Quick Release" Nipple utilizes powerful wedging action to lock nipple securely to journal. You install the joint or remove it for inspection—with just an end wrench; no danger of damaging nipple with heavy pipe wrenches.

Super Construction . . . and Stamina

Teams "Green Streak" seal rings, of much harder and denser structure, with Ni-Chrome plating on wearing surfaces. Results: Considerable reduction in friction load and much longer service life.

Write for Literature

Bulletin S—Johnson Joints for use with both through-flow and stationary syphon pipe applications.
Bulletin N—Johnson Joints for use with rotating syphon pipe.





FULL STEAM AHEAD

See the Cyanamid **MELOSTRENGTH*** Paper Exhibit at the TAPPI Convention

See you in the lobby of the Hotel Commodore, New York, February 22 through 25. We think you'll find the Cyanamid Exhibit interesting, fun—and believe it will help make your visit to New York more enjoyable. Features MELOSTRENGTH Resin—shows how it adds to the value of paper. Cyanamid, largest supplier of chemicals to the paper industry, invites you to see for yourself.

AMERICAN CYANAMID COMPANY, PAPER CHEMICALS DEPARTMENT
30 ROCKEFELLER PLAZA, NEW YORK 20, NEW YORK

*Trademark

CYANAMID



Ken O. Fosse Joins Perkins-Goodwin in Chicago

Born in International Falls, Minn., which he says is the "coldest spot in the country," Mr. Fosse moved with his family to the West Coast when he was five. Starting in the technical end of the industry, he worked for seven years at Rayonier's Shelton, Wash. mill. He has been active more than 20 years in production and sales in the pulp industry. He has two sons, both of whom were married within the past year. His home address is 1065 Old Elm Lane, Glenview, Ill. He will headquarter in P-G's Chicago office, 704 Chicago Daily News Bldg.

Midwest

Dr. Reginald L. Wakeman is named director of technical research and development, Packaging Corp. of America, with headquarters in Grand Rapids, Mich. Educated at M.I.T. and in Europe, he was formerly director of research for Quaker Chemical Products Corp. . . . **Frank B. Younger**, north central states representative for Appleton Woolen Mills, has also been assigned a four-state territory ranging from Mobile, Ala., through Texas. He replaces **W. W. Jackson**, a former paper mill supt. who plans to return to the paper industry. . . . **Dr. Harold K. Hughes** is now director of the dept. of physics, Central Research & Engineering div., Continental Can Co., Chicago. He will head research on production and quality control metal, paper, plastic, glass and composite containers and closures.

Dr. M. N. Davis, research laboratories mgr. for Kimberly-Clark Corp., Neenah, Wis., died unexpectedly December 22. Reputed to be the first full-time physicist employed in the paper industry, he joined K-C in 1929. He was chairman of the mechanical engineering group and an advisor to the optical properties section of TAPPI. . . . **Lloyd N. Benson**, secretary of Northwest Paper Co., Cloquet, Minn., died December 12. He had been with the firm since 1938.

George A. T. Moore has been named

administrative asst. of paper sales for A. E. Staley Mfg. Co., Decatur, Ill. He was formerly asst. mgr. of the Chicago office. . . . **Robert P. Getty**, vice pres. and director of Fort Wayne (Ind.) Corrugated Paper Co., becomes exec. vice pres. of Crandon Paper Mills Inc., Fort Madison, Iowa. . . . Cadillac Associates Inc., Chicago employment organization, announces appointment of **Norman Mayell** as associate counselor in the paper industry div. He was formerly exec. secretary to the president of United Wallpaper Inc.

L. O. (Lou) Carlisle is the new manager of corrugating starch sales for The Hubinger Co. of Keokuk, Iowa, according to **Roy Underwood**, bulk sales manager.

George H. Olivey, vice pres. and sales mgr. of the Mill div. of Owens-Illinois, has been named to the Paper Products div. as gen. mgr. of the Aurora, Ind., corrugated shipping box plant.

John V. Kaine has been named central district sales mgr. for Coltan Chemical Co., a div. of Air Reduction Co. Inc. His headquarters are in Cleveland.

Promotions announced by Kimberly-Clark Corp. include: **C. J. West, Jr.**, from asst. supt., stockroom and coating, Kimberly, Wis., to pulp mill supt.; **Harley E. Nelson**, from special projects asst. in manufacturing at Neenah, to production mgr.; also at Neenah, **Chet Halverson**, asst. supt. of technical dept., to supt. of the test standardization section in the



Kenneth M. Cherry, Mfg. VP Owens-Illinois Mill Division

Former manager of linerboard mills for O-I, Mr. Cherry has been promoted to vice pres. manufacturing, mill division, C. G. McLaren, O-I vice president and gen. manager, mill division announces. Mr. Cherry, who has had overall supervision of mills at Jacksonville, Fla., and Valdosta, Ga., now bases in Toledo, O., and will supervise all five O-I mills, including Tomahawk, Wis., Big Island, Va. and Jaite, O. He began at Tomahawk in 1947 as supt. of construction, later was mill manager. He taught and coached for 15 years at Tomahawk High School. He succeeds **Fred B. Schelhorn**, now vice pres. forest products, applied research and development.

quality systems and measurement dept., research and development, and **James Coley**, process chemist at Neenah, is transferred to the New Milford, Conn. mill.—**Don W. Zeigler**.



Savage



Sheets



Wheeland



Black

R. H. Savage Promoted as Mead Announces Changes

For many years Mead Corp. director of research and development, Vice Pres. **R. H. Savage** has assumed new duties, where he will work closely with Board Chairman **H. E. Whitaker** on corporation planning. Mr. Savage became Mead research director at Chillicothe, Ohio, in 1937. In other Mead personnel changes, **George H. Sheets**, mgr. of the Chillicothe div., becomes managing director, research and development; **Hoyt H. Wheeland**, Chillicothe production mgr., succeeds Mr. Sheets,

and **Hugh A. Black**, director of industrial relations, becomes chief of the industrial relations dept. to succeed the late **A. J. Miller Jr.** In New Products div. changes, **George F. Martin**, asst. to the vice pres. of Mead Board Sales Inc., becomes products development mgr.; **William H. Brickner**, formerly with Diamond Gardner Corp., is products planning mgr., and **William A. Wheeler**, previously with Adams Paper Converting Co., is chief engineer.

Strictly Personal

Abbott Byfield, Asst. to K-C Board Chairman

Formerly director of new products, corporate product planning, he will serve as administrative asst. to JOHN R. KIMBERLY, chief executive officer and board chairman. Mr. Byfield joined Kimberly-Clark Corp. in 1939 after graduation from M.I.T. and served the federal government from 1941 to 1945 in the Office of Scientific Research

& Development. He is succeeded as director of new products by WILLIAM G. WILSON.

Cola Parker Honored

COLA G. PARKER, chairman of the finance committee of the National Association of Manufacturers and former president of Kimberly-Clark Corp., has been cited as "NAM Man of the Year."



Paul E. Clark, Crystal Tissue Tech. Director

His appointment was announced by S. H. REED, exec. vice pres. and gen. mgr. Mr. Clark joined the firm at Middletown, Ohio, in 1937 as folder boy and after graduation from Ohio State Univ. became successively chemical engineer and chief chemist.

Mechanical Pulping Conference Set for Chicago in 1961

The 4th International Mechanical Pulping Conference will be held at the Edgewater Beach Hotel, Chicago, Sept. 19-21, 1961.

W. H. DE MONTMORENCY, Pulp and Paper Research Institute of Canada, is general chairman. Technical program chairman is S. R. PARSONS, Consolidated Water Power & Paper Co. Joint sponsors are TAPPI (U.S.A.) and the Technical Section, Canadian Pulp and Paper Assn.



Mead

O'Gara

Consolidated Water Power & Paper Co. Executive Appointments

GEORGE W. MEAD II has been appointed to the new position of product coordinator, it is announced by W. J. FOOTE, director of book paper manufacture. Mr. Mead will coordinate sales-service, manufacturing and technical activities related to product development in the company's three book mills.

WM. O'GARA will succeed Mr. Mead as production mgr. of Wisconsin Rapids Division, announces L. W. MURTFELDT, division manager.

Mr. Mead was production mgr. since 1956. A graduate of Yale University, he received a master of science degree from the Institute of Paper Chemistry in 1952. Mr. O'Gara has been asst. production mgr. of Wisconsin Rapids division since early 1959. He joined Consolidated in 1942 and was supercalender and winder supt. at Wisconsin Rapids from 1945 to 1959. He holds a b.a. degree from the U. of Wisconsin.

Play It Smart!

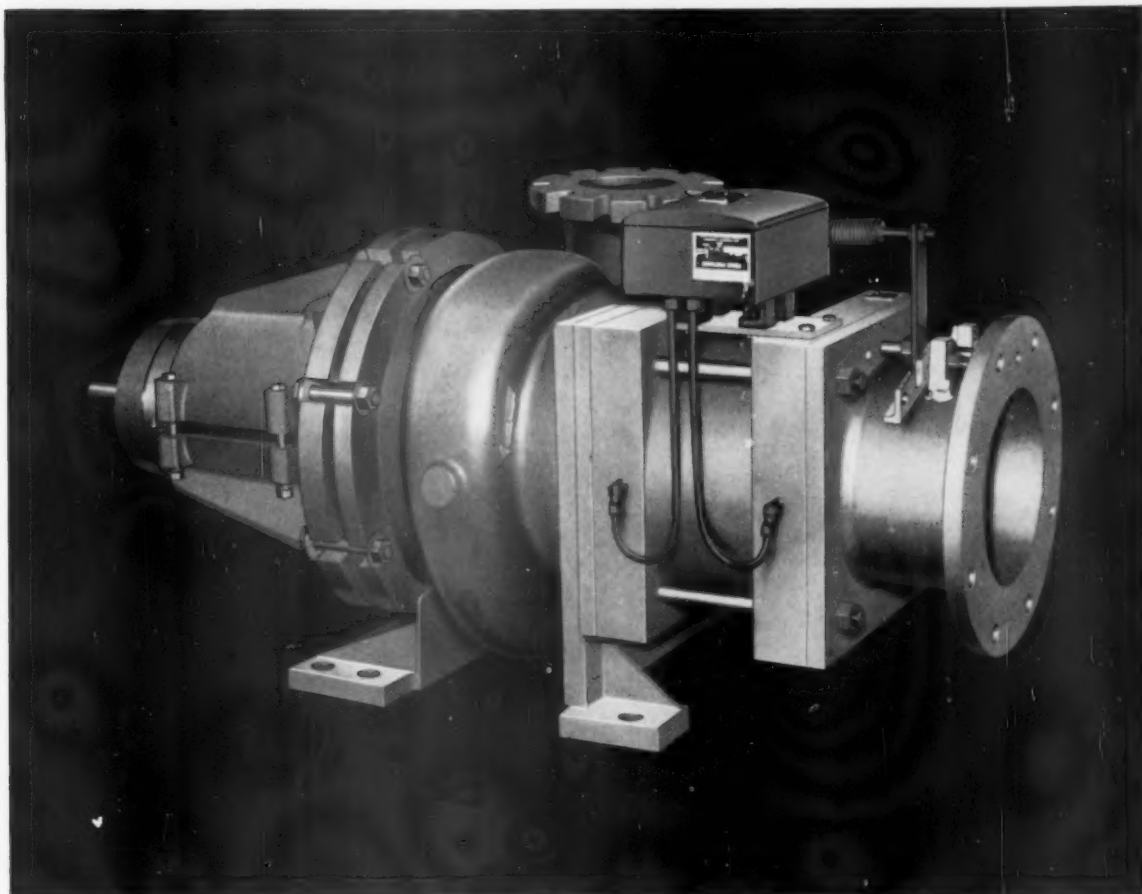
Use Bitusize® "B" emulsified asphalt integral sizing to get high dry and wet strength in all your hard sized grades of board. Contact our office nearest you for complete information.

American Bitumuls & Asphalt Company

320 Market St., San Francisco 20, Calif.
 Perth Amboy, N.J. Baltimore 2, Md.
 Cincinnati 38, Ohio St. Louis 17, Mo. Oakland 1, Calif.
 Atlanta 8, Ga. Tucson, Ariz. Inglewood, Calif.
 Mobile, Ala. Portland 8, Ore. San Juan 23, P. R.
 Bitumuls® Emulsified Asphalts • Chevron® Paving Asphalts
 Laykold® Asphalt Specialties



ALLIS-CHALMERS



New air control speeds response to varying head and capacity requirements.

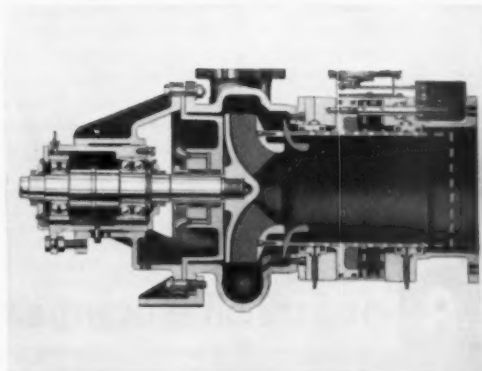
Allis-Chalmers Adjustable-Capacity, Adjustable-Pressure Pumps now feature **new instant control...new simplicity**

Another advancement in adjustable pumping — an improved pneumatic control system adjusts the cylinder of ACAP pumps in a matter of seconds . . . automatically. Only the cylinder itself moves. Gears and control motor are eliminated. Installation and maintenance costs are reduced.

Position of cylinder is changed by air pressure. Cylinder is actually a hollow, horizontal piston that doubles as the suction inlet. Increasing the air feed to one side of the piston moves the cylinder in or out, thus regulating recirculation and flow at the discharge nozzle.

Oil mist lubrication through each air feed. Double seal arrangement prevents contamination of stock. Seal chamber is vented to atmosphere, resulting in immediate detection should either seal fail.

See this new control system in action at the TAPPI Convention, February 21-25, New York, N. Y., or write for full details to **Allis-Chalmers**, General Products Division, Milwaukee 1, Wisconsin.



ACAP is an Allis-Chalmers trademark.

A-1228

VISA (Lake States Group) Plans Year's Events

Directors of the Valley Industrial Salesmen's Assn. met in Appleton, Wis., recently to plan its 2nd annual joint dinner-meeting with the Northeastern Wisconsin Purchasing Agents' Assn. at the Elk's Club in Menasha, Wis., Thurs., Feb. 4th.

CHARLES J. O'CONNOR, chairman of Reichhold Chemicals, will discuss "The Effect of Foreign Imports & Manufacturing on the American Economy." ALLEN C. GRAY, Minnesota Mining's rep. in Neenah, is in charge.

Additional plans call for several Saturday morning "brunches" with speakers on sales topics, a golf outing tentatively set

for May 26, a Milwaukee Braves baseball game outing, and a Christmas party Dec. 11.

A directory of members will be printed and distributed to area purchasing agents.

Officers elected: President, J. C. MILLS, Wyandotte Chemicals; vice president, MATTHEW F. HEALY, JR., American Cyanamid; secretary, RUSSELL C. LAKEY, Nopco Chemical; treasurer, CLAIRE TURNER, Appleton Woolen Mills. Publicity chairman is VERN C. BERGQUIST, Reichhold Chemicals, and board members are: FRANK B. YOUNGER, Appleton Woolen Mills; RAY P. KIRKEIDE, Magnus Chemical; HARRY L. FORD, C. A. Roberts Co.; and HAROLD A. SKINNER, Marathon Pulp Sales.

Northeast

William A. Hosmer is now supt., Willow Mill, Hurlbut Paper Co. . . . George C. Stier has been elected president of Nopco Chemical Co. Ralph Wechsler, former president, is chairman of the board succeeding Thomas A. Printon, who continues as a director. Harry A. Batley becomes executive vice president and G. Daniel Davis, former executive vice pres., becomes vice-chairman of the board.



**Alvah Crocker Is New President
Crocker, Burbank & Co., Ass'n.**

Mr. Crocker succeeds DOUGLAS CROCKER, who is now honorary chairman of the board. DONALD M. CROCKER steps up as vice president i/c manufacturing operation; BARTOW KELLY, to treasurer and BIGELOW CROCKER JR. to secretary.



**Edson "Ed" J. Ferrell, Tech. Dir.
Crocker Burbank & Co., Ass'n.**

Mr. Ferrell joined CB in 1951 after 14 years with Fraser Paper Ltd., Madawaska, Maine. Both at Fraser and Crocker Burbank he was instrumental in development of the trailing blade coater. Born and raised in Agawam, Mass., he has a b.s. in chemistry from the U. of Massachusetts. His new duties cover production quality control, new product research and development in industrial, book and bristol papers. There are 43 lab personnel under his direction.

William J. Roach, president and director of Atterbury Brothers, Inc., died suddenly after a brief illness. He was one of those responsible for development of sales of Scandinavian pulp in the U.S. . . . Webster Hilton steps into new post of supt. i/c paperboard manufacturing, Downingtown Paper Co. Ellis Myers becomes asst. to the supt. Mr. Hilton will report to George B. Nicholson, manufacturing mgr.

GILBERT and NASH AIR OPERATED felt and wire guide



New . . . Simple . . . Compact.
Now operating on machines at speeds over 2,000 fpm, the Gilbert and Nash Air Guide reacts quickly with reliability and precision.

Although entirely air operated, this new guide uses air only when a correction is made. What's more, "swing roll" effect or guide roll oscillation is completely eliminated.

Guide roll is held stationary if air supply is interrupted . . . there are no springs to pull guide roll with possible damage or loss of wire or felt.

Complete standardization of all guides can be easily accomplished because the same model air guide is used for wires, wet and dryer felts.

We invite you to request for our representative to call.

Manufactured and sold exclusively by —



APPLETON MACHINE COMPANY

APPLETON • WISCONSIN



CONVEYOR BELTS



Note the perfection of training and troughing shown in this photograph.

Marathon-Southern's new mill is 100% equipped with "U. S." Conveyor Belts

United States Rubber literally has the run of the mill in the Marathon-Southern Corp.* mammoth unit at Naheola, Alabama.

"U. S." Conveyor Belts are used as follows:

*Two U. S. Matchless® Conveyor Belts for log sorting.

*Two U. S. Matchless Conveyor Belts for use as chipper feed log belts.

*Six U. S. Oil-resistant Conveyor Belts (two running from chip conveyors to screens, two running from chip conveyors to silos and two more running from silos to chip conveyors).

*One U. S. Oil-resistant Conveyor Belt used as a digester feed chip conveyor.

*One Oil-resistant belt used as screen rejects conveyor.

*One Oil-resistant belt used as purchased chip conveyor.

*U. S. Giant Conveyor Belt used as refuse conveyor to boiler.

*Special Tan Natural Rubber Covered Belt used as stock conveyor from washer.

*Special Tan Natural Rubber Covered Belt used as stock conveyor to MD storage.

*U. S. Giant Conveyor Belt carrying coal to crusher house.

*U. S. Giant Conveyor Coal Stacker Belt.

*U. S. Giant Conveyor Belt carrying coal from crusher house to boiler.

*U. S. Giant Conveyor Belt used on coal reclaim feeder.

Marathon-Southern's selection of "U. S." Belts *exclusively* is due to their long-established record of low-cost haulage, durability and freedom from maintenance. This is another mill in which "U. S." demonstrates the kind of performance that has made it the foremost authority in belting.

The most comprehensive belting engineering information is available through your "U. S." Distributor. It will pay you to check with him.



Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y.

In Canada: Dominion Rubber Company, Ltd.



Things are growing at Buckeye

PLANT CAPACITY DOUBLED IN 1959

Buckeye is growing bigger to serve you even better.

A recently completed addition doubles plant capacity, and both units have the most advanced equipment. Improved processes include double-screening for outstanding cleanliness, and 8-stage bleaching for top brightness without strength loss.

There's growth in Buckeye's timber supply, too. Company-owned holdings have been increased to over 800 thousand acres. Seedlings selected for pulping characteristics and fast growth are being planted at the rate of 10 million a year. If you're looking for a dependable source of supply to match your growth, let's talk it over. Buckeye specializes in market pulp.

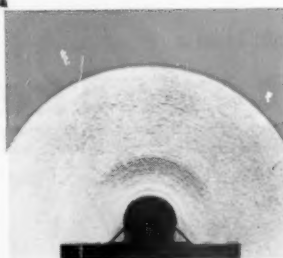
BUCKEYE CELLULOSE CORPORATION
Memphis 8, Tenn.

Wood pulp plant at Foley, Fla.—Cotton linters plant at Memphis



BUCKEYE

*Bleached and Semi-Bleached
Kraft from Southern Pine*



PULP



Westad

McGoldrick

Shotgun for Retiring Pulp Importers President

WILLIAM B. MCGOLDRICK, U.S.A. mgr. for Price & Pierce Ltd., has been honored on retirement as president of the Assn. of American Wood Pulp Importers. At a dinner at the Gaslight Club, New York, N. Y., he received a shotgun in recognition of his service. Making the presentation was PER WESTAD of Borregaard Co., new association president.

John F. Fila has been promoted from technical director to asst. supt. in charge of converting operations at the Chatham div. of Columbia Box Board Mills Inc.

Lester J. Smith is now mgr. of manufacturing for St. Regis Paper Co.'s printing paper mills at Deferiet, Bucksport and Sartell; his office remains in Deferiet, N.Y. . . . Eight St. Regis Deferiet men have been promoted: Fred N. Sprague is sales representative for printing paper at Deferiet; E. L. Phillips is manufacturing supt.; John W. Hurley is quality control representative for the Deferiet mills; Gino M. Zando is chief inspector; Gerald E. Weirich, formerly with the central technical dept. in Carthage, is now asst. chief inspector; Douglas H. Clark, formerly with Fraser Cos. Ltd., is project chemist; Herman Lamora succeeds "Slim" Phillips as paper mill supt., and Lyle Derby is the new machine room supt.; Donald Kepler succeeds him as swing supt.



Douglas Allan, Continental
Can Co. Plant Mgr.

. . . at Haverhill, Mass. for the Boxboard & Folding Carton div. He succeeds HAROLD FERNALD, who has retired after 39 years with the firm and the pre-merger Robert Cair Co. Mr. Allan, at Haverhill since 1932, became asst. plant mgr. in 1957.

Just 3 days lost production of a Paper machine can cost more than the vacuum pumps. That makes dependability the essential factor in pump selection. No pump is more dependable than a Nash



Over a thousand leading mills depend on Nash Vacuum Pumps to insure uninterrupted production. Nash Pumps are built to stand the pounding of continuous operation. They are simple. They have no internal parts in wearing contact. They will handle slugs of water or stock. They are designed to operate at the low speeds necessary for long life and reliability. Don't gamble with your production. Install Nash Vacuum Pumps and be safe.

The new Nash 5308-A shown above, has four separate suction inlets, each of which functions independently of the others. This offers the machine operator great flexibility, since these may be used in any desired combination to produce a variety of capacities and vacuums.

NASH ENGINEERING COMPANY

SOUTH NORWALK, CONN. U. S. A.

PULP & PAPER

Strictly Personal

T. F. Cooke is now director of chemical research and Robert S. Long commercial development mgr., Organic Chemicals div., American Cyanamid Co. . . . Ernest Doyle has been promoted from asst. foreman to foreman in the cutter dept. of finishing at Hammermill Paper Co.'s Erie, Pa. mill. . . . Edward G. Volpe is now group leader in the standards section, Hammermill, and Francis A. Szesutkowski is back at his old job as project engineer after three years in the

rubber industry. . . . Dennis Jackson, Hammermill's paper mill technical coordinator, is seeing double since the birth of twins recently. . . . Dr. Edward D. Amstutz, professor of organic chemistry at Lehigh Univ., has been named head of the dept. of chemistry; he received his master's from the Institute of Paper Chemistry in 1931.

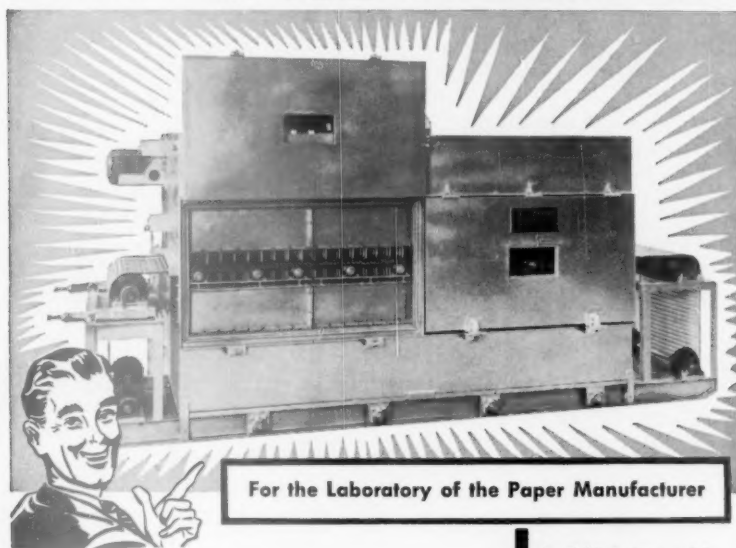
William H. Delavan is retiring as president of the Delavan div. of Mead Containers, Inc., subsidiary of The Mead

Corp. Paul H. Fulmer, production mgr., and Kenneth G. Foeppl will split his duties and responsibilities.

Leonard J. Doyle, v.p., Union Bag-Camp Paper Corp., has been enrolled as a member of the National Defense Executive Reserve. . . . Ralph H. Cutting, president, Keyes Fibre Co., has been elected to the board of the National Assn. of Manufacturers.

Herbert M. Lowenstein and John L. Menon have been elected vice presidents of Combustion Engineering, Inc. . . . Timothy J. Hennigan is now responsible for sales in New England, David C. Loveland for central New Jersey and Paul E. Browne greater Philadelphia area for The Permutit Division, of Pfaunder Permutit, Inc. James E. Quigley becomes New York district sales mgr., Ervin P. Vogel, sales rep. in Brooklyn and Long Island and Joseph M. Reitzes is now technical mgr. of the chemical dept. . . . Denman Penniston, asst. to the president, Solvay Process Div., Allied Chemical Corp., has retired.—Maurice R. Castagne.

NEW JETZONE[®] LABORATORY and Pilot Plant HIGH VELOCITY DRYER



For the Laboratory of the Paper Manufacturer

- widens the scope of your pilot operation.
- makes initial runs to test market.
- allows wide range of paper formation and finish.
- opens up new avenues for product development.
- extremely adaptable as a dry and cure unit.
- permits exploration of the new coating techniques.

Write for complete specifications

Available in two models
to handle 24" web.
GAS OR STEAM FIRED!

Model L 4

- Two four-foot long drying zones.

Model L 8

- Two eight-foot long drying zones.

JOIN THE INDUSTRY... INVESTIGATE THE NEW TECHNIQUE OF HIGH VELOCITY DRYING



A Leader in High Velocity
Drying Since 1946

Fred Enders, 69, Leader Of Pulp Industry, Dies

FREDERICK ENDERS, chairman of the board and former president, Bulkley Dunton Pulp Co., Inc. and long one of the most prominent figures in the North American industry, died January 6 in Regent Hospital, New York. He was 69 years old.

Mr. Enders, a native of New York City, started the Fred Enders Pulp Co. in 1918. His company specialized in the distribution of imported woodpulp to American paper mills. In 1922 he was put in charge of the pulp division of Bulkley Dunton & Co. and later was made president of the Bulkley Dunton Pulp Co., a position he held until 1958, when he was elected chairman.

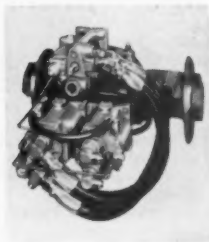
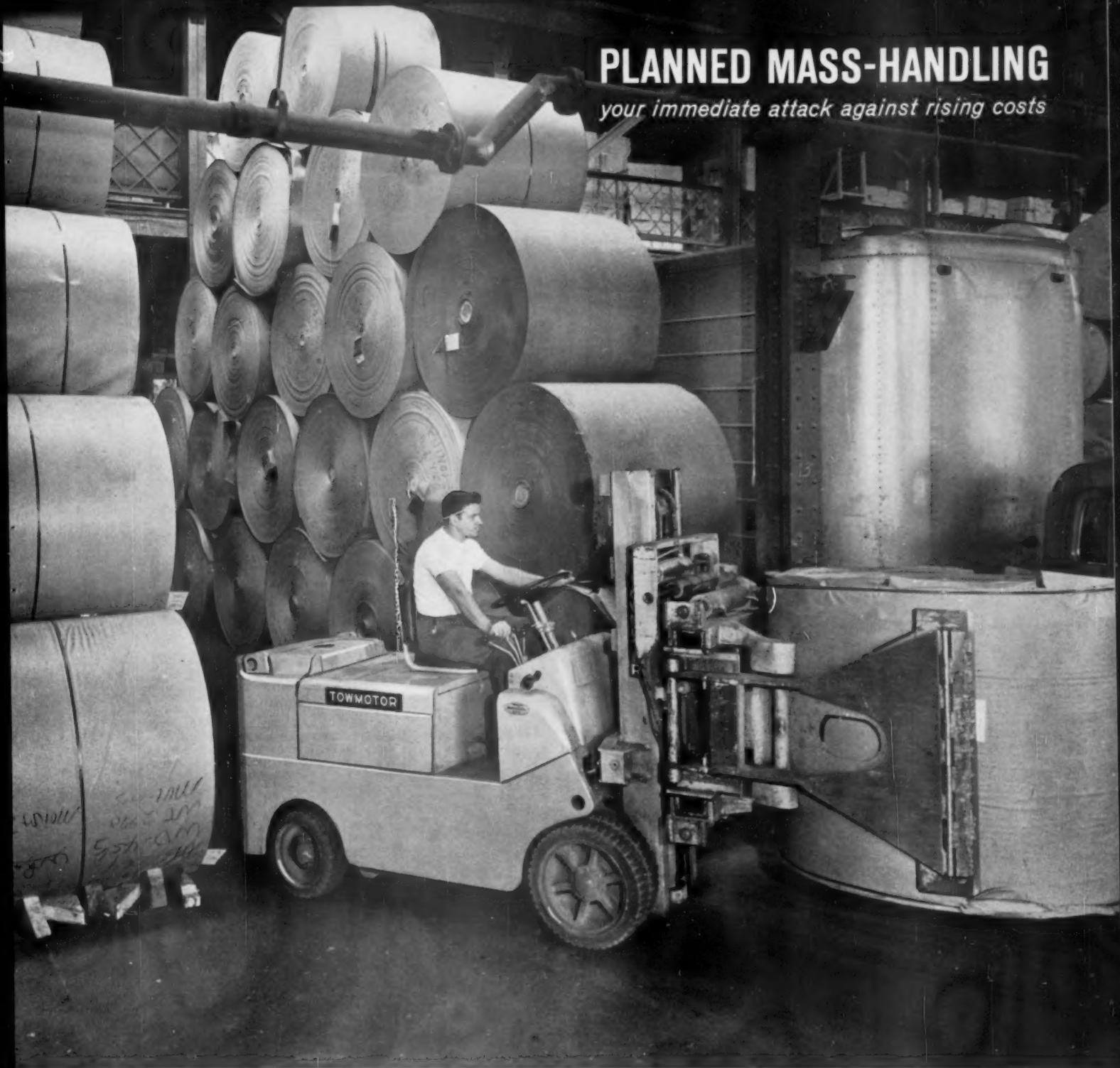
Under his leadership, Bulkley Dunton, oldest paper and pulp merchandising concern of the country, became one of the major factors in developing the woodpulp producing facilities of the Pacific Northwest.

In 1945, Mr. Enders took control of the United Paperboard Company and was later elected board chairman. He resigned in 1951. He was a director and active in the management of the Missisquoi Paper Co., now part of Standard Packaging. He also was a principal stockholder of Cushion Pack, Inc., Hawthorne, N.J., manufacturers of packaging materials, and a director of Puget Sound Pulp & Timber Co. and St. Raymond Paper Co., Ltd.

Mr. Enders' interest and connections in world markets was instrumental in expanding the scope of Bulkley Dunton to international fields and to establishing the organization's offices in Europe, Latin America, Africa and the Far East.

PLANNED MASS-HANDLING

your immediate attack against rising costs



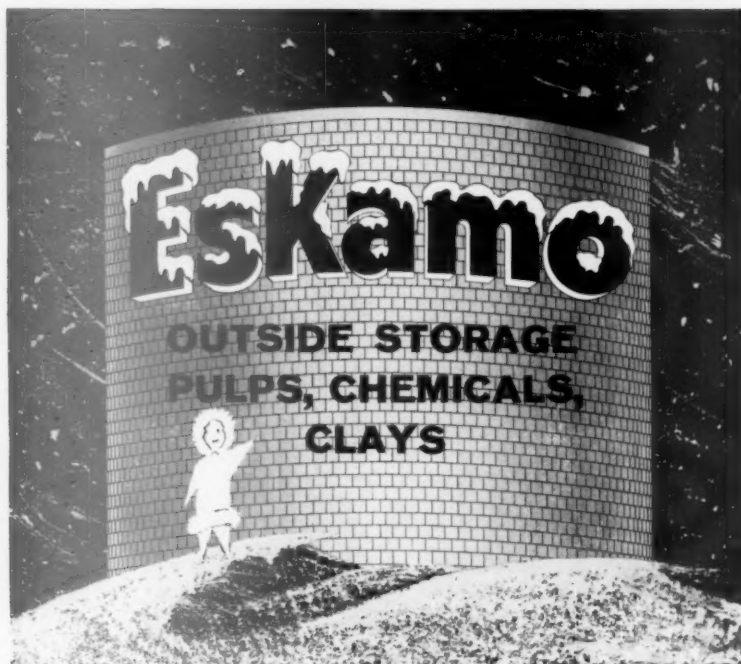
IT'S A FACT: The unique Towmotor Towmostatic Drive guarantees handling flexibility, smooth operation and maintenance benefits far greater than any other fork truck drive.

YOU LOWER COSTS IMMEDIATELY when you use Towmotor lift trucks equipped with the versatile revolving roll clamp pictured above. Through planned mass-handling, they put the right products in the right place at the right time . . . and increase profits by moving more paper faster. Write for material handling case studies that give you practical recommendations for improving handling methods in your mill. TOWMOTOR CORPORATION, CLEVELAND 10, OHIO.

FORK LIFT TRUCKS, CARRIERS AND TRACTORS SINCE 1919

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THE ONE-MAN-GANG

Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation



put your tanks & chests *Outside*

SAVE BUILDING COSTS. It costs approximately \$15,000* to house a 25' I.D. x 40' high tank. This cost is eliminated when you use an ESKAMO Tank and *put it outside*.

NO MAINTENANCE. Constructed of reinforced concrete with acid-proof VersaTILE ceramic surfaces inside and out, ESKAMO Tanks are insulated with S & E Insulation to maintain desired operating temperatures. *No outside insulation and weatherproofing to maintain* as with insulated tanks of concrete, steel or wood.

LOW B.T.U. LOSS. At 35°F below zero it takes more than twelve hours to lose 1°F. in an ESKAMO Tank.† No freezing—no clinging to inside walls.

CUSTOM DESIGN. Each installation is designed in accordance with applicable ACI, CRSI Codes, and other recognized standards to meet your specific chemical, mechanical and loading requirements. ERECTION is always performed by skilled, direct-employed crews.

Eskamo: Trademark of the Service & Erection Co.

*Area includes working room around and above tank at \$.40 c.f.

†A 25' I.D. x 40' high tank three-quarters full of stock at 100°F

SERVICE & ERECTION CO.

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Designers and Builders of  Linings and Tanks



Schmidt Owen Miller

P. H. Glatfelter Co. Promotes Three

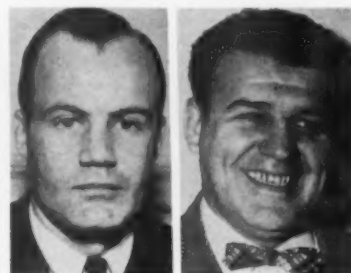
BYRON C. MILLER steps up to production asst. to the general supt. He is a a.b. (chemistry) grad from Gettysburg College, joined Glatfelter in 1946 as research chemist and has served as asst. pulp mill supt. and pulp mill supt.

PAUL J. SCHMITT is now pulp mill supt., joined in 1949 in the technical dept., was made a group leader i/c pulp development in 1952 and recently was technical asst. to the general asst. He is a b.s. chemical engineering grad of Lehigh U. ROBERT D. OWEN moves up to engineering asst. to the general supt. and will coordinate all phases of engineering and equipment problems. He joined Glatfelter in 1953 as a project engineer, is a b.m.e. from Rensselaer Polytechnic Institute and has a degree from Harvard Graduate Business School.

IP Promotions Fine Paper & Bleached Board Div.

R. H. HINMAN steps up as manager of the fine paper and bleached board division's regional office in Chicago and as asst. mgr., primary grades, of International Paper Co.'s Midwestern region under D. H. KENNEDY.

RUSSELL E. CHASE JR. is named manager of publication sales replacing J. P. SAWYER, who has resigned. GEORGE STUHR JR. is now asst. to the sales mgr. i/c special accounts and assignments. L. T. KRUMH JR. steps up as mgr., bleached board sales. All with the exception of Mr. Hinman will headquarter in New York.



Hoopes

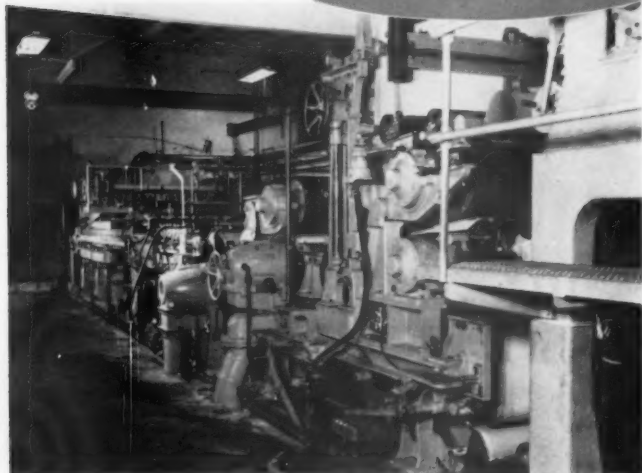
McGee

Finch, Pruyn & Co., Inc. Promotes Two

SAMUEL P. HOOPES, safety director for past six years, is now director of purchasing. He is a graduate of Dartmouth College.

WILLIAM F. MCGEE, previously procedures accountant, is now traffic manager. He attended Temple U. in Philadelphia.

ANOTHER NEW
PAPER MACHINE
BY...



From the Inlet to the Reel, Gilbert's new machine incorporates the latest in design with maximum built-in flexibility.



*for your paper machine
requirements consult...*



GILBERT

PAPER COMPANY'S
NO. 2 MACHINE

"the Valley Queen"

To produce Gilbert's famous Cotton Fiber Content papers in such grades as bond, index, ledger, drawing, currency, cover, manuscript, tracing, and specialty grades.



The newly designed Valley Horizontal Breaker Stack, the new Valley Horizontal Size Press, and the new Valley Horizontal Track Surface wind Reel are examples of Valley's increasing progress and service to the Industry.

**VALLEY IRON WORKS
CORPORATION**

SUBSIDIARY OF ALLIS-CHALMERS MANUFACTURING COMPANY
APPLETON, WISCONSIN

Hugh J. Chisholm Dies
(Chairman of Oxford Paper)

Mr. Chisholm, chairman of Oxford Paper Co., died suddenly at his office in New York, N.Y. He was 73 and the son of the late Hugh J. Chisholm.

His first job at Oxford was as secretary to his father. He became president in 1912 and held that post until 1956, when he was elected chairman. His son, WILLIAM H. CHISHOLM succeeded him as president.

During Mr. Chisholm's 44-year tenure as president, Oxford became one of the largest book paper mills in the country.

Edwin S. Flinn, Exec. Vice Pres. of Hurlbut Paper Co.

Dr. Flinn assumed the duties of chief executive officer of the South Lee, Mass. company upon the retirement of E. A. SITZER Dec. 31. Dr. Flinn, Mead employee since 1945, had been assistant to the president of Hurlbut since Jan., 1959. Hurlbut, a leading producer of technical papers is a subsidiary of The Mead Corp. Dr. Flinn joined Mead as manager of the Tannin Extract Division at Lynchburg, Va., in 1945. He became assistant director of chemical research at Chillicothe, O. in 1953.

Southern

Tennessee River Pulp & Paper Co. has added three new names to its growing staff. **G. L. Holliman**, a chemical engineering graduate of the Univ. of Alabama, is pulp mill supt.; he was asst. pulp mill supt. at Longview Fibre Co., Longview, Wash., **Amon B. Lindsey Jr.**, formerly with Gulf States Paper at Tuscaloosa and Demopolis and before that with Rayonier at Jesup, joins the staff as instrument supervisor. **James G. Lee**, one-time Combustion Engineering engineer and recently power plant supt. at East Texas P&P is asst. pulp mill supt.

George Clark, asst. director of Rayonier's Shelton div. marine laboratory, has been transferred to Jesup, Ga., as research engineer.

L. L. Lapeyrouse, mgr. of International Paper's Bastrop, La. mill, has been elected president of Louisiana chapter, National Society for Crippled Children and Adults Inc.; he has been a trustee of the state chapter for the past two years.

... **William A. Wood Jr.**, a new member of the technical services dept. of Carboline Co., has his office with **O. A. Melvin** in Houston; phone number: OL 4-9515. ... **George Peters**, technical service director since 1946, has been promoted to the newly-created position of technical asst. to the div. mgr. of Mead Corp.'s Tennessee div. **John Sullins** takes over Mr. Peters' former position, and **George Clark** has been named assistant.

... Members of the Southeastern div. PIMA membership committee are **L. L. (Buster) Griffiths**, Draper Bros.; **Herb Fishburn**, Williams-Gray; **Jack Whitener**, Hank Jones; **Ransom Meade**, American Cyanamid; **Lew Cole**, Stowe Woodward; **Carl Hendricks**, Bauer Bros.; **George Hardaker**, Lockport Felt; **Clark Snook**, Nopco Chemical Co. ... **Robert M. Kimsey** has been named supervisor, administrative services, at West Virginia Pulp & Paper's Kraft div., Charleston, S.C. ... **Alloy Steel Products Co.**, Linden, N.J., has opened an office in Baton Rouge, La., under management of **A. E. (Andy) Garihan**.—**William F. Diehl**.



Now Serving South

DAN LENT, formerly with Alton Boxboard Co. as technical director, is new Southern representative for Morningstar-Paisley Co., living in Jacksonville.



Webster Combination Chain is strong and durable—widely used where a serviceable and economical chain is desired.

Pins may be riveted type or provided with cotters. Pins are designed to prevent turning in side bars—distributing wear over full surface of pin inside the long barrel of the link.

Smoothly cored holes assure close fit over pins. Special pattern equipment and tools assure accuracy of pitch and reduce clearances between all wearing surfaces to a minimum.

Rugged steel side bars.

Cast links are made of highest grade malleable iron or Dural which provides 20% greater strength. Available in plain as well as many styles of attachment links to suit your specific requirements.

All Webster Chains are designed, cast, machined and tested in our Tiffin, Ohio, plant.

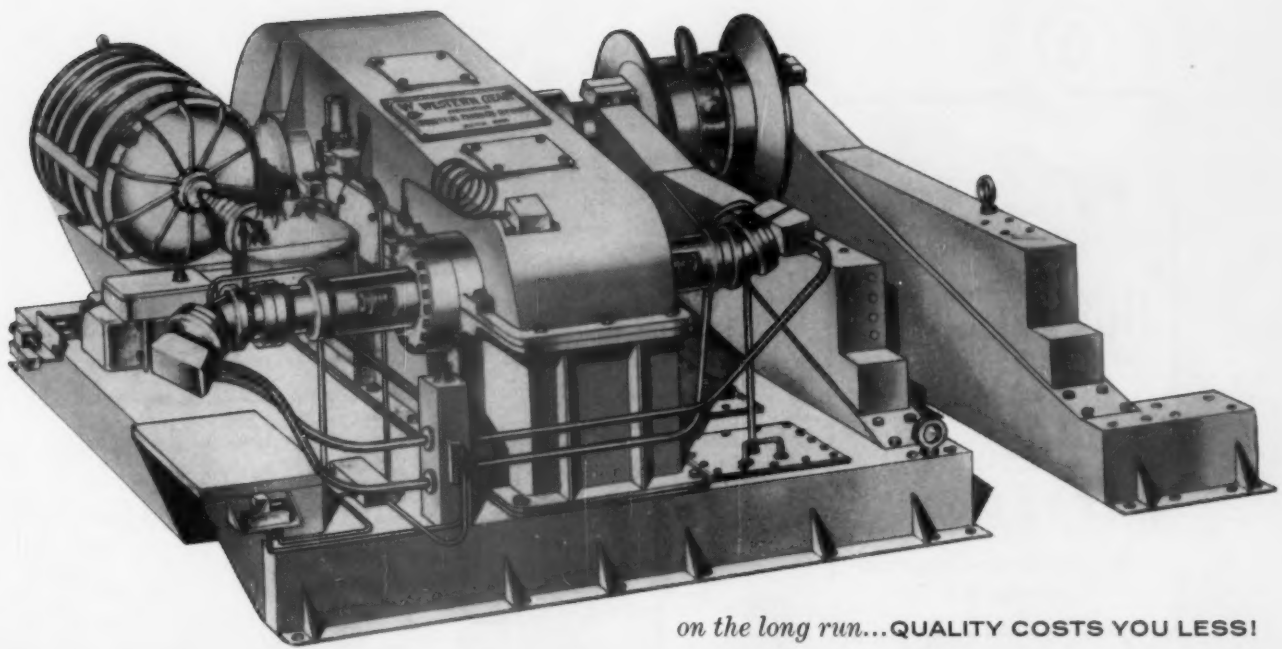
Webster MANUFACTURING, INC.

DEPT. PP-20, TIFFIN, OHIO

BULK MATERIALS HANDLING EQUIPMENT

Offices in all Principal Cities





on the long run...QUALITY COSTS YOU LESS!

ANOTHER WESTERN GEAR "FIRST"...ELECTRO-HYDRAULIC LOG HAUL DEVELOPED FOR ALASKA LUMBER & PULP COMPANY



The electro-hydraulic log haul pictured here, unique among the 175 gear drives supplied for the new mill embodies a new concept developed by Western Gear engi-

Operational requirements were: 48 ft. of rise in 220 ft. of haul; maximum chain pull not less than 50,000 lbs. nor more than 65,000 lbs; haul 200 ft. of 24" diameter logs at 120 ft. per minute.

Extra measures of quality that made this design the most practical and economical choice over all other log haul drives are:

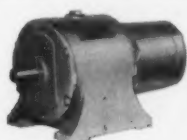
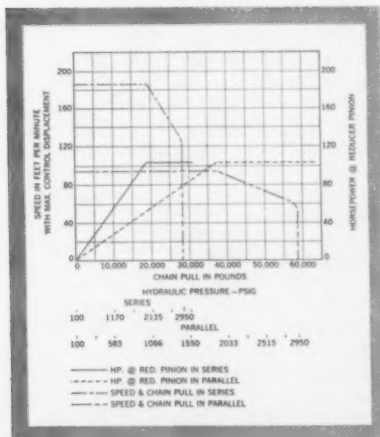
1. Infinite speed variation from 0-185 FPM permits continuous maximum mill flow regardless of variable debarking time.
2. Horsepower Limiter Control automatically adjusts for maximum preset horsepower to allow full capacity operation regardless of load.
3. Absence of shock loads. Electric motor runs continuously, softer starting of hydraulic drives eliminate major service problem.
4. Positive Overload Protection. High response relief valve removes pressure to motor, instantly sets fail-safe hydraulic brake.

5. Unitized Construction integrates base, valve components and piping into protected self-contained package, completely tested at factory.

The considerable knowledge of marine electro hydraulic deck machinery combined with their background in power transmission equipment and log haul was invaluable in the Western Gear development of this important new concept of log haul design.

Western Gear's experience in electro-hydraulics and infinitely variable speed power transmissions can solve your drive problems. For full information, write, wire or phone:

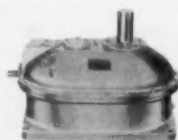
INDUSTRIAL PRODUCTS DIVISION
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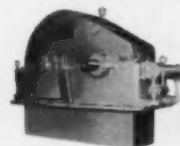
INTEGRAL GEARMOTOR



PARALLEL SHAFT REDUCER



VERTICAL SHAFT REDUCER



HIGH SPEED UNIT



RIGHT ANGLE REDUCER



**"THIS LUBRICANT
SAVED US
\$2,098.16
IN SEVEN MONTHS"**

—says THE BROWN COMPANY
Quality Paper Makers of Berlin, N. H.

"During a seven-month period before using LUBRIPLATE No. 130-AA in the bearing of our Kraft Mill Lime Kiln, we used a conventional oil at a cost of \$2,134.00. In the seven months that followed, we used LUBRIPLATE No. 130-AA for initial filling and replacement at the cost of \$35.84."

**REGARDLESS OF THE SIZE AND
TYPE OF YOUR MACHINERY,
LUBRIPLATE GREASE AND
FLUID TYPE LUBRICANTS WILL
IMPROVE ITS OPERATION AND
REDUCE MAINTENANCE COSTS.**

LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.



For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



**Clyde J. Pate, Huyck
Felt Sale Engineer**

Formerly with the Texas div., Champion Paper & Fibre Co., he will cover the southwestern states. He recently finished training at Huyck plants in Rensselaer, N.Y., and Aliceville, Ala.



**R. E. Wertheimer, Asst. Mgr.
Longview Container Operations**

Mr. Wertheimer's promotion at Longview Fibre Co., Longview, Wash., was recently announced. He is a son of the late ROBERT E. WERTHEIMER who was vice president and general manager of this kraft pulp and paper company.



Boatwright

Chapman

**J. B. Boatwright, Asst. Paper
Mill Supt., Halifax Paper Co.**

... as a result from expansion at this division of Albemarle Paper Mfg. Co. in Roanoke Rapids, N. C. Reporting directly to Supt. M. L. BOINEST JR., he will be in charge of Nos. 3 and 4 machines (including new 246-in. Dixie Queen). R. S. BELL, also an asst. paper mill supt., bosses Nos. 1 and 2. Replacing Mr. Boatwright as tour foreman is RALPH S. CHAPMAN, formerly machine tender and relief tour foreman for Hudson Pulp & Paper Corp., Palatka, Fla. Mr. Boatwright came to Halifax as tour foreman for No. 3 machine in 1952. He had previously been with St. Regis Paper Co. and Union Bag & Paper Corp.

**A. D. "Tay" Levert
Retires at Gaylord**

"Tay", long prominent in the southern industry, retired January 1 as asst. to the resident mgr. of Gaylord Container Corp. (div. of Crown Zellerbach Corp.), Bogalusa, La. The announcement was made by W. F. GILLESPIE, resident mgr. Mr. Levert joined Bogalusa Paper Co. in 1925 following graduation from Louisiana State Univ. as a chemical engineer. He advanced with Bogalusa and later Gaylord Container, becoming successively engineer, board mill supt., asst. works mgr., asst. gen. supt. and asst. to the resident mgr. His early retirement results from business and personal reasons.

Pacific

Jack E. Johnson, 81, who took early retirement because of health in 1937 as paper mill supt. at Hawley Pulp & Paper Co. (now Publishers' Paper), Oregon City, Ore., died Dec. 22. He associated with the industry at an early age, working in Maine mills before moving to the West Coast. Subsequent to retiring as a paper-maker he was Pacific Coast representative for Appleton Woolen Mills 15 years, retiring four years ago.

Charles E. Remington is transferred from the Pacific Northwest regional office of the U.S. Forest Service, Portland, Oregon, to asst. regional forester in charge of the div. of engineering in the Rocky Mountain regional office, Denver, Colo.

Jack M. Lamb, res. mgr., St. Regis Paper Co., Tacoma kraft center, is appointed gen. mgr. for the Tacoma operations. In this new position, he will have direct responsibility for the logging and forestry dept.; the pulp-paper mill; bag and box plants and the sawmill; plywood operations, and retail lumber yard at St. Paul and Tacoma. He is succeeded by S. Kepple Pratt, gen. supt.

Sam Runyan, personnel and safety supervisor, Crown Zellerbach, St. Francisville, La., is transferred to asst. personnel and safety supervisor, West Linn, Ore.

Following senior executives of the St. Paul and Tacoma Lumber Co. div. of St. Regis Paper Co. have retired from active service but will continue as consultants: Everett G. Griggs II, St. Paul & Tacoma president and St. Regis director; G. Corydon Wagner, vice pres. and gen. mgr., manufacturing and sales; W. Hilding Lindberg, vice pres. of St. Paul & Tacoma and Tacoma area gen. mgr. of forestry and logging for St. Regis.

Thomas Anderson, woodmill, chipping and logging supt., CZ's Lebanon mill, moved to asst. chip buyer, Portland, Ore.



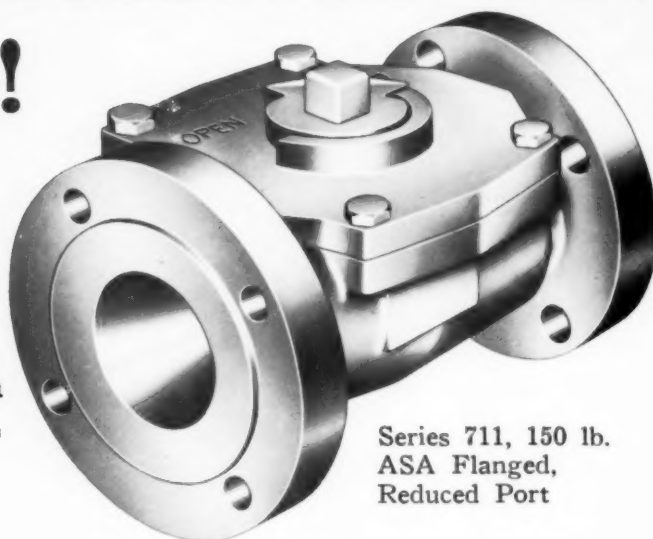
**totally
new!**



Only **FLO-BALL** valves are bearing-fixed for maintenance-free long life!

... with all the features
you must have:

- Top loading
- Replaceable seats
- One-piece ball and stem
- 90° on-off
- Two-way flow



Series 711, 150 lb.
ASA Flanged,
Reduced Port

Now available ... the result of years of intensive service in the missile-space industry ... proven in thousands of adverse applications ... now at mass produced prices ... the most advanced line of ball valves ever manufactured ... for you!

ORDINARY BALL VALVE

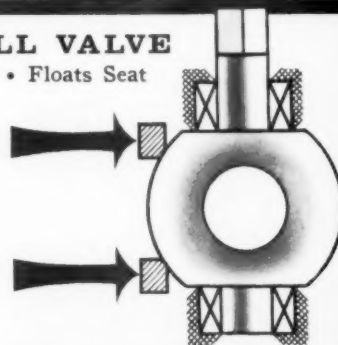
Floats Ball • Fixes Seat



Floating ball puts excessive pressure load on fixed seats. Results in distortion and short life.

FLO-BALL VALVE

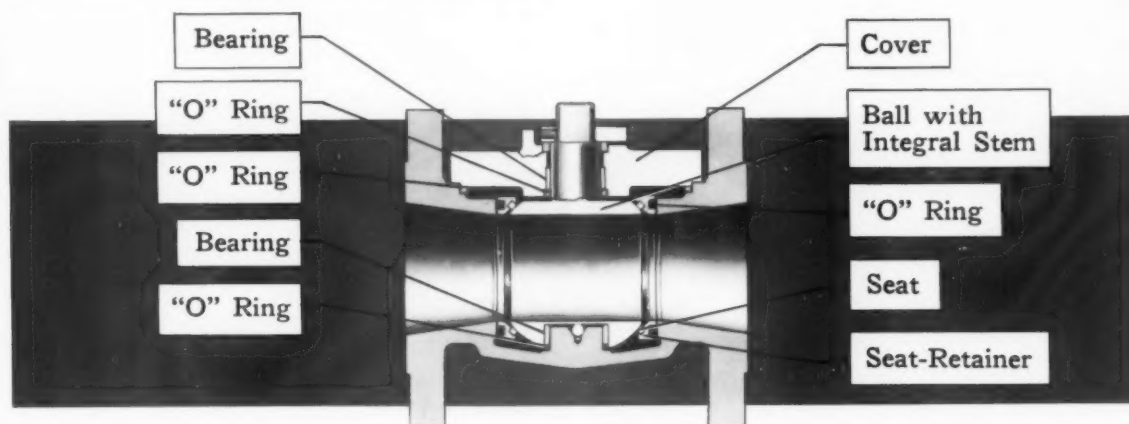
Fixes Ball • Floats Seat



FLO-BALL bearings absorb all pressure forces. Elimination of excessive seat loading insures long life.

The Series 711 **FLO•BALL** valves are available for off-the-shelf delivery. All are manufactured to standard ASA dimensions in semi-steel, carbon steel, 316 stainless steel, and aluminum (ASTM 356-T-6) for body

and ball, Teflon for seats, and Buna "N" O-Ring seals. Other materials are also available. These valves operate at pressures to 300 psi, temperatures to 400° F.



The Hydromatics Series 711 **FLO•BALL** valve gives you the features you must have!

- Bearing-Fixed ball. Engineered to withstand shock and impact without distortion or backlash.
- Top loading. Valve can be disassembled and assembled without removing it from line. No special tools are required.
- Self adjusting, replaceable seats. Both balanced seats are self-aligning and self-adjusting for controlled seat loading and positive seal.
- No lubrication. Operates completely without lubrication.
- Zero leakage. At all operating pressures, including vacuum to 10^{-6} mm. of Hg.
- One-piece stem and ball. Simplified construction adds strength, precision and lower torque.
- Maximum flow efficiency. The open **FLO•BALL** valve provides an unrestricted, straight-thru fluid path.
- Lowest torque. Bearing-Fixed construction results in effortless, fast-action with low torque.
- Two-way flow. Exclusive **FLO•BALL** seat design principle insures perfect seal in both directions.

Hydromatics, Inc.



*Mail this
postage-free
card today*

Tear Along This Edge

Gentlemen:

Your Bearing Fixed Flo•Ball valves from $\frac{1}{8}$ " to 24" may help solve a problem relating to the control of:

- ☐ Corrosive Liquids ☐ Cryogenic Liquids ☐ Throttling Flow
☐ Vacuum ☐ High Pressure

My flow problem is _____

PLEASE: ☐ Have salesman call ☐ Send technical data

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Company name _____

Address _____

City _____ State _____

Bearing-fixed



New Zero leakage



Maximum flow

Top loading



New



No lubrication

One piece ball and

stem



New



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NEW JERSEY

*Mail this
postage-free
card today*

As runners-up in Kaiser Aluminum Co.'s national barbecue contest, Dick Worl, northwest sales mgr. for Western Gear Corp., and wife Mary Kay won a two-week trip to Honolulu, where they placed second in the finals and were awarded a Jeep. . . . The unusual amount and quality of smoke at the recent PIMA meeting in Seattle was traced to a major accomplishment of Harold S. Hilton, president of Hilton Products Co., who recently became the father of a baby boy, Hal Jr. . . . American Mfg. Co., Tacoma, promotes Henry E. Zachow from field engineer to chief engineer.

James DeGarmo, formerly service engineer for Bauer Bros. Co., Springfield, Ohio, moves to Eugene, Ore., as asst. to Kenneth H. Wylie, western district mgr. . . . Earl H. Houston, International Paper Co.'s vice pres. in charge of the Long-Bell div.'s western operations, retired January 1. He had been with the company 46 years. . . . Edward A. Stamm, Portland, Ore., has been appointed general sales mgr. for Boise Cascade Corp.'s lumber and plywood div. . . . Jack F. Lewis, vice pres., manufacturing, for Hyster Co., Portland, Ore., has been appointed managing director of Hyster Ltd., Scotland; he has also been elected a director of Hyster NV, The Netherlands.

T. M. James Jr., Pacific Northwest district mgr. for Nalco Chemical Co. at Portland, Ore., moves to Chicago as field personnel mgr. of the firm's Industrial div. He is succeeded in Portland by W. V. Cross, formerly Wisconsin district mgr. at Neenah.



**David W. Harris, Vice Pres.
C. C. Moore Co., Engineers**

Mr. Harris, Seattle branch manager for C. C. Moore for nine years, has been named commercial vice president and a member of the board of directors of that West Coast firm, announces H. H. Smith of San Francisco, president. Mr. Harris and his staff have engineered and directed installation of power and recovery boilers in both of Alaska's mills, also many Idaho and Washington mills. C. C. Moore is Pacific Coast representative for Babcock & Wilcox Co. Mr. Harris, 49, was born and raised in Granger, Wash., and came to C. C. Moore in 1935, following graduation as a mechanical engineer from Washington State University. He and his wife, Fern, were married that same year and now have three children.

New **RIDGID**® No. 141 Geared Threader For 2½", 3", 3½", 4" Pipe and Conduit



Save Time...Cut Costs on all large threading jobs!

- 1. Only 1 Set of High Speed Dies** threads 2½", 3", 3½" and 4" pipe and conduit. No extra die sets to change or lose! Die size selector plate sets quickly and locks at desired size. Easy adjustment for tapered, straight, over or under size threads.
- 2. Jam-Proof** for safe threading by power or hand. Drive pinion kicks out automatically. Die head *Can't Jam* . . . avoids costly repairs and delay.
- 3. New Fast-Action, Cam-Type Workholder** sets to size by quick turn of collar. Set screw holds work centered for perfect threads every time . . . adjustable for drip threads.

Your Supply House has them! Order your new **RIDGID** No. 141 Threader today!

RIDGID

The Ridge Tool Company, Elvira, Ohio, U.S.A.

PULP & PAPER

Strictly Personal

Herbert J. Munson joins St. Regis Paper Co. central engineering dept. as resident electrical engr. of the Tacoma, Wash. plant expansion, reporting directly to Oliver A. Smith, exec. electrical eng.

John Fulton, president of Portland, Ore. Chamber of Commerce and corporate representative of Crown Zellerbach, returns from civic and trade conference to Japan. . . . Art Palmer, who retired as groundwood supt. at CZ West Linn div., returning home from Khulna, East Pakistan where he assisted in start-up of a new mill during the past year.

Add service stripes: At Weyerhaeuser's Longview plant—35 yrs. for Kenneth H. Larkin, personnel mgr., 25 yrs. for Donald G. Felthous, plant engr.; at Crown Z West Linn Div., 25 yrs. for Porter T. Dickie, technical control supervisor.

D. E. "Bud" Hale, prominent Northwest pulp-paper industry union leader, died at his home in Camas, Wash., Dec. 15. He worked at Crown Zellerbach Corp. for 34 yrs. and several terms as president of Local 100, International Brotherhood of Pulp Sulphite & Papermill Workers, AFL-CIO.—Louis H. Blackerby.



McClure Rubens Pratt

Partners in Engineering Firm

The 14-year-old Seattle consulting firm of Stevenson & Rubens has been reformed as Rubens & Pratt. The organization has participated in engineering projects for St. Regis, Rayonier, Puget Sound Pulp & Timber, Crown Zellerbach and others, including the "Seminole Chief" expansion at the St. Regis Jacksonville, Fla. plant and the Crown-Time St. Francisville, La. paper mill.

Partners making up the new firm are Boris R. Rubens (senior) Henry B. Pratt, and Carter McClure. John H. Stevenson, former partner who specializes in services

for architects, has formed a separate business.

Mr. Pratt has been a partner in the firm for 5 yrs. Prior to that he was project engineer for Ketchikan Pulp and before that, served seven years as asst. construction engineer for Union Bag at Savannah, Ga. Mr. McClure has been with the firm 14 years, a partner 10 years.

Mr. Rubens worked on one of the earliest hydraulic barking installations at Soundview Pulp Co. prior to entering the consulting field.



Stein

Byers

Active interest in community affairs assures bright future for Alaska Lumber & Pulp at Sitka. At a Rotary Club meeting THOMAS R. STEIN, mill mgr., was inducted to membership by ARCHIE M. BYERS, woods mgr.

Another Major Mill Chooses

BABCOCK & WILCOX!

Alaska Lumber & Pulp Co.

selects two B&W Power Boilers and

two B&W MgO Recovery Boilers equipped with Diamond Soot Blower

and Water Columns, and Cochrane Feed Water De-mineralizer

purchased from

C. C. MOORE & CO., ENGINEERS

Contractors for Steam and Recovery Plant Equipment for Pulp and Paper Industries

STEAM PLANT EQUIPMENT FOR INDUSTRIAL CONCERNS . . .

REPRESENTING . . . Babcock & Wilcox Co. • Detroit Stoker Co. • Cochrane Corporation
Diamond Power Specialty Corp. • The Airetool Mfg. Co. • Spray Engineering Co.
Cooper Bessemer Corp. • Custodis Construction Co., Inc. • The Dampney Company of America

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This is a service of interest to the rapidly increasing number of companies preferring to receive their sulphur deliveries in molten form so that they can transfer directly from cars into consumption. We are equipped now to deliver molten sulphur by tank car from all mines and recovery plants to any place in the country. Detailed instruction sheets and drawings are available on request for those in the planning stage or who do not have adequate or proper facilities for handling and storing molten sulphur.



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Sulphur Producing Units: Newgulf, Texas • Spindletop Dome, Texas • Moss Bluff, Texas • Fannett, Texas • Worland, Wyoming • Okotoks, Alberta, Canada



Butler

Julien

45-Year Award to Julien

G. M. JULIEN, asst. to the res. mgr., Camas, Wash. div., Crown Zellerbach Corp., receives service award from Res. Mgr. R. A. BUTLER denoting 45 yrs. with the organization. Mr. Julien was office mgr. at Crown's Portland regional office before going to Camas in 1928.

Use Survey To be Made Of Forests in Cambodia

GROVER A. CHOATE, U.S. Forest Service research specialist, Portland, Ore., has been named leader of a 5-man American team that will work with Cambodian foresters to inventory forest resources and prepare land-use plans for the Indo-chinese kingdom.

Pulpwood

JOHN H. HINMAN, chairman, International Paper Co., was elected 1960 president of American Forest Products Industries. W. R. ADAMS, St. Regis Paper Co., was elected a vice president. CHARLES A. GILLET, Washington, D.C. was renamed



William C. Hammerle Joins APA as Forester

He will be responsible to W. S. "BILL" BROMLEY, executive secretary of the American Pulpwood Assn., for the APA forest management and legislative programs and will assist with the technical program. Mr. Hammerle, a graduate of New York State College of Forestry at Syracuse U., began his career in forestry with the USFS. He has a background of 30 years in many phases of forestry including several years as executive secretary of the Southeastern Pine Marketing Institute.



Bastin

Howie

Crabtree

25 Years in the Woods

... is achievement of E. L. (GENE) HOWIE, chief forester for Fraser Companies Ltd., Edmundston, N. B. He is presented a gold watch marking a quarter-century service to the firm by AUBREY CRABTREE, president, while V. C. BASTIN, logging and lumber dept. mgr., looks on.

managing director. Elected new trustees were REUBEN B. ROBERTSON, Champion Paper and Fibre Co.; WESLEY M. DIXON, Container Corp. of America; H. C. LAUGHLIN, Owens-Illinois Glass Co.; ARTHUR TEMPLE, JR., Southern Pine Lumber Co.; and EDWIN C. RETTIG, Potlatch Forests Inc.

Re-elected trustees include Mr. Adams; J. L. CAMP, JR., Union Bag-Camp Paper Corp.; ALVIN HUSS, Huss Lumber Co. and Huss-Ontonogan Paper Co., and DAVID LUKE, JR., West Virginia Pulp and Paper Co.



GREAT NAMES in the Paper Industry: Oxford Paper Co.

Oxford Paper Company's new Supercalender at Rumford, Maine, is equipped with Butterworth Calender Rolls.

Butterworth Rolls, used by the leaders in the Paper Industry, are made to specification and checked for hardness, smoothness, and density before delivery. You can see the difference in finer finishes, extra hours of service without turning down or refilling.

Furnished new or refilled for every calendering need. And you get Butterworth Rolls at competitive prices. Quotations on request.

H. W. BUTTERWORTH & SONS COMPANY
Bethayres, Pa. Division of Van Norman Industries, Inc.



BUTTERWORTH

More than 60 years of Roll-Making Experience



IS STRONG

Bleached Sulfite Pulp

PUGET SOUND PULP & TIMBER CO.
BELLINGHAM • WASHINGTON

Strictly Personal

WARREN PRIBNOW, accountant of Crown Z's southern timber div. at Bogalusa, La., transfers to San Francisco headquarters as timber accounting director.

CARTER GILLELAND, Puget Sound accounting supervisor, Port Angeles, becomes office mgr. for CZ at Neah Bay.

FRANCIS X. SCHUMACHER, specialist in forest biometry at Duke Univ. School of Forestry, Durham, N.C., has been rewarded for outstanding achievement in forestry by the Society of Am. Foresters.

Winter Fill-In Activity For Alaska Loggers

Ketchikan Pulp Co. is overhauling woods gear, working on roads and building additional family homes during the current winter logging shut-down. According to A. M. BROOKS, woodlands mgr., a total of 30 such homes will be in use at the Hollis camp when logging resumes—probably in February. About 4 miles of new truck-logging road is under

construction in the Traitors Cover area for use during 1960.



Dr. Louis H. Bock, Research Div. Mgr., Rayonier Canada

Dr. Bock, formerly asst. mgr. of research at Rayonier's Shelton, Wash. mill, succeeds Dr. E. L. LOVELL, new mgr. at the Olympic Research div. A graduate of the Univ. of Illinois, Dr. Bock is well known for work in linear polyester fibers from lignin and for research on cellulose esters and thermosetting resins.

Canada

Fred Oxenbury, who started with Crown Zellerbach Canada in Ocean Falls in 1927, has been promoted to special assistant to the corporate secretary, Vancouver, B.C., offices. He is succeeded as purchasing agent in Vancouver by his former assistant, David Adirim.

Tom Jackson, formerly a vice pres. of Pacific Mills (now a subsidiary of Crown Zellerbach Canada) in charge of timber and logging, has been elected secretary of Kootenay Wood Conversion Co., representing several sawmills in the interior of British Columbia producing pulp chips for coast mills. William Clark, Canadian Ingersoll Rand, Montreal, and well known in Canadian pulp and paper circles, has returned to Montreal after spending the past three years at Vancouver as western mgr. Brian W. Potts, formerly woods mgr. of Anglo-Newfoundland Development Co. at Grand Falls, Nfld., and at present serving in a consulting capacity, will retire in the spring after 45 years with the company.

Harold Moorhead, vice pres. and chief engineer, Powell River Co., is the new president of the Professional Engineers Assn. of British Columbia.

Leon Koerner, retired board chairman, Rayonier Canada Ltd., is now making his home in Palm Springs, Calif., although he continues to visit British Columbia frequently.

Gordon I. Hoover, mill mgr., Provincial Paper Ltd., Thorold, Que., died recently at the age of 59. At one time a lecturer in chemistry at the Univ. of Toronto, he became identified with the paper industry in the 1920s and joined Provincial in 1930.

There's more to a Lodding Doctor than meets the eye

Few qualifications for manufacturing count more than experience. And when experience has been concentrated within a specialized line of endeavor it adds value to the product.

Lodding Doctors carry that extra value derived from experience—experience accumulated over thirty years of specialization in the manufacture of doctors, doctor blades, blade holders and their accessories. During this period, Lodding has built and installed doctors for every conceivable doctoring application, under all conditions and of every type and size, up to and including the Great Lakes Paper Company's 340 inch newsprint machine.

Installations of Lodding Doctors are found in nearly every paper mill in this country and in many mills abroad. Each was precision engineered and precision manufactured for the specific roll being doctoring.

Doesn't it make sense to rely on specialized experience? Most mills have found that it does. Next time, get Lodding Doctors. Then you'll profit too.



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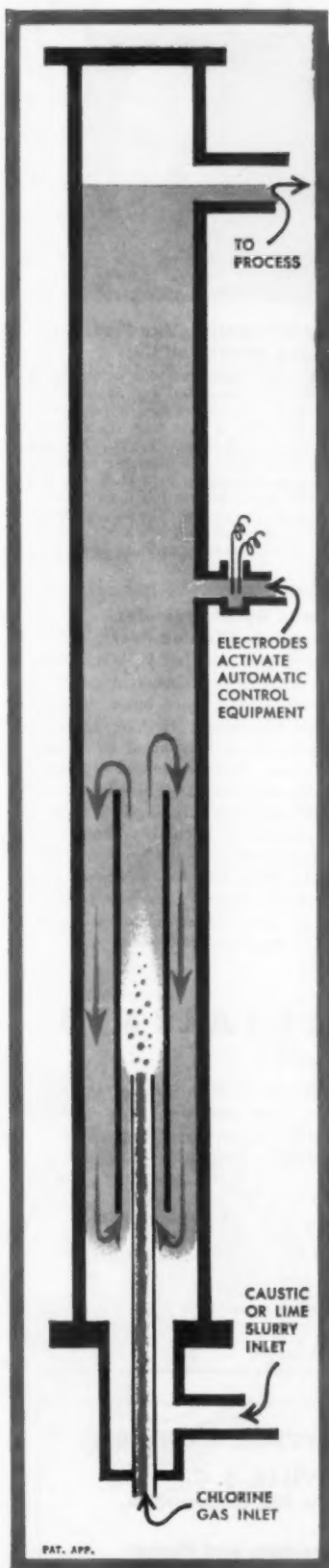
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Barre, Massachusetts

R. T. Barnes, Jr.
1523 Chapin Avenue
Burlingame, California

Pulp & Paper Mill Accessories Ltd.
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Montreal 9, Canada

E. & M. Lamort Fils
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(Marne) France

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PENNSALT CONTINUOUS HYPOCHLORITE REACTION TOWER

**uniform bleach liquor produced
in less space...at less cost than
by conventional batch system**

To meet the request of the pulp industry for a simple and reliable continuous sodium or calcium hypochlorite preparation system, Pennsalt engineers applied the well known basic principles of batch preparation.

1. The preparation of the alkali prior to chlorination at constantly uniform strength.
2. Reaction column design for rapid and complete mixing and reaction of the chlorine and alkali.
3. Immediate and continuous discard of grit and inert materials removed in the centrifugal clarification of calcium hypochlorite.

It is known that the velocity of reaction of chlorine and an alkali is dependent upon the hypochlorite ion content. The Pennsalt Hypochlorite Reaction Column was designed to incorporate this principle. The rapid upflow within the draft tube causes recirculation of hypochlorite to the base of the column to mix with inflowing alkali. The resulting alkaline hypochlorite reacts instantly with the chlorine in a short reaction zone enabling the electrodes to sense system changes almost instantaneously and the control instruments to take prompt corrective action.

Ask Pennsalt Technical Service for help in solving your particular problem. Write for free Technical Bulletin H-2024. Pennsalt of Washington Division, PENNSALT CHEMICALS CORPORATION, Tacoma 1, Wn.

References: TAPPI Vol. 38 No. 10: Paper Trade Journal, May 7, 1956; Pennsalt Technical Brochure No. 21
Reference Installations (Calcium Base): Longview Fibre Co.; St. Helens Pulp & Paper Co.; Publishers' Paper Co.

Pennsalt of Washington Division
TACOMA 1, WASHINGTON

Offices and Plants:
Los Angeles and Menlo Park, Calif., Philadelphia, Pa.,
Portland, Ore., Vancouver, B. C. (CRestwood 8-1412)

PENNSALT CHLORINE and CAUSTIC SODA are made at
Calvert City, Ky., Portland, Ore., Tacoma, Wash.,
Wyandotte, Mich., and Mexico City.





**Claude E. Steeves, Mill Mgr.,
Marathon Corp. of Canada**

Gen. supt. since 1952, he succeeds GRANT D. ROSS, mill and townsite mgr. who has left the organization. Replacing Mr. Steeves is IRA H. BIRCH, pulp mill supt. DWIGHT M. REID, now technical supervisor, succeeds Mr. Birch, and BERNARD KLOWAK, asst. technical supervisor, becomes technical supervisor. Mr. Ross joined Marathon in 1943 as plant engineer, becoming mill mgr. in 1947 and mill and townsite mgr. six years later. Mr. Steeves associated with the firm in 1946 as night supt., becoming asst. pulp mill supt. in 1947 and operation supt. later that same year.

F. F. Foote, top official of Westminster Paper Co., New Westminster, B.C., almost since its inception, has retired as treas. but will continue as a director. W. C. Carlson, continues as secretary and also assumes the duties of treas. He joined the company in 1948 as office mgr. A. L. Taylor, former chief accountant, has been appointed to the new post of comptroller. . . . Gordon L. Bennett is named mgr. of sales development, Dryden Paper Co. Ltd. He was formerly mgr. of kraft paper sales, Anglo Paper Products Ltd.—Charles L. Shaw.

NEWS OF SUPPLIERS TO THE INDUSTRY

Hilton To Make Valves in Greenville, South Carolina

Hilton Valves, Inc., a firm newly formed at Greenville, S.C., will produce the Hilton line of valves for this southeastern U.S. market. DAN O. BAYLESS is president. HAROLD S. HILTON, owner of Hilton Products Co., Seattle, Wash., is vice pres. of the new affiliate.



Gothner



Hallencreutz

American SF President; Vice Pres. Svenska Flaktfabriken

KARL F. GOTHNER has been named president of American SF Products, Inc. He succeeds ARNE HALLENCREUTZ who has been elected vice president i/c international operation of American SF's parent firm, AB Svenska Flaktfabriken.



**Arthur S. Hayeslip, Vice Pres.
I/C Sales, Huyck Felt Co.**

FREDERIC A. SODERBERG vice president of F. C. Huyck & Sons and gen. manager of Huyck Felt Co., announced appointment of Mr. Hayeslip, a native of Manchester, N.H., who joined Huyck in 1919. He was named industrial sales manager in 1952, directing a nationwide field staff. He has had broad experience in felt manufacture, design and application. The appointment fills the vacancy created when Mr. Soderberg assumed the responsibility of general manager.

Diamond Alkali Promotes Wilkerson to Division Post

Promotion of MARTIN F. WILKERSON, branch manager of Diamond Alkali Co.'s Southwest District sales office, to sales manager, Chlorinated Products Division, Cleveland, O., is announced by LOREN P. SCOVILLE, Division general manager. Mr. Wilkerson has 11 years sales experience with Diamond, starting in 1948 as a field salesman in Memphis. ROBERT L. WALKER, salesman for the Southwest District sales office, Houston, Tex., was promoted to the branch manager's position, replacing Mr. Wilkerson according to H. B. CLARK, director of sales.

RUBBER ROLL COVERING SPECIALISTS



GENERAL OFFICE
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Through continuous research, Griffith Rubber Mills is constantly developing new and improved roll covering compounds. Griffith coverings are applied by experts. Regular laboratory checks maintain uniformly high quality.

- Expert Roll Covering
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**Pulp, Paper and Wood Mill
Machinery and Supplies**

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McKoy-Helgersson Company

GREENVILLE, S. C.

Paper and Pulp Mill Construction,

Equipment Erection and Piping

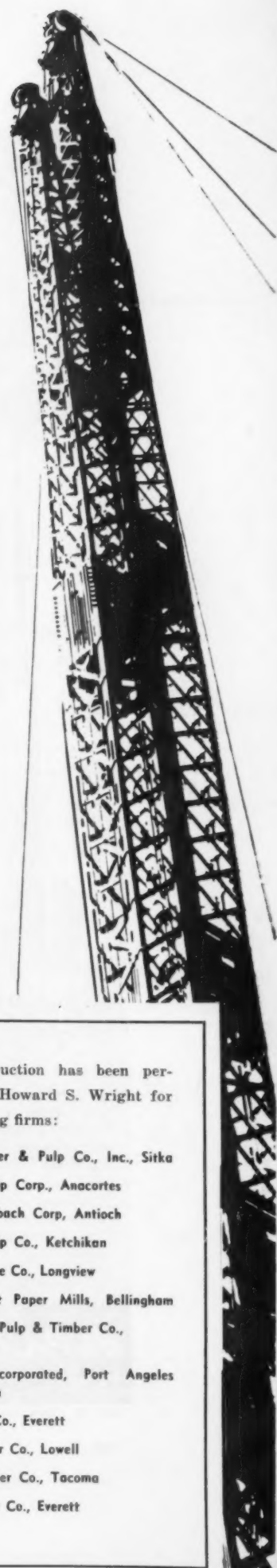
PAPER HOUSE MADE TO LAST

Planning, coordination and know-how . . . all were essential elements in construction of Alaska Lumber and Pulp's impressive new plant in Sitka.

Equally essential to this efficient installation was the experience of Howard S. Wright Construction Company . . . a Northwest firm serving the pulp and paper industry with quality construction for 25 years.

To complete the Sitka project two full months ahead of the schedule taxed the considerable skills of the Wright staff . . . men who make it standard procedure to apply un-standard techniques in solving the toughest construction problems.

This same talent, experience and imagination are part of the plus service supplied without added cost to every client who consults Howard S. Wright Construction Company, regardless of the scope or complexity of the job to be done. Listed below are a few of the major mill projects for which it was selected as prime contractor, indicative of the confidence it enjoys among the leaders in the wood processing industry.



Mill construction has been performed by Howard S. Wright for the following firms:

Alaska Lumber & Pulp Co., Inc., Sitka
Coos Bay Pulp Corp., Anacortes
Crown Zellerbach Corp, Antioch
Ketchikan Pulp Co., Ketchikan
Longview Fibre Co., Longview
Pacific Coast Paper Mills, Bellingham
Puget Sound Pulp & Timber Co., Bellingham
Rayonier, Incorporated, Port Angeles and Shelton
Scott Paper Co., Everett
Simpson Paper Co., Lowell
St. Regis Paper Co., Tacoma
Weyerhaeuser Co., Everett

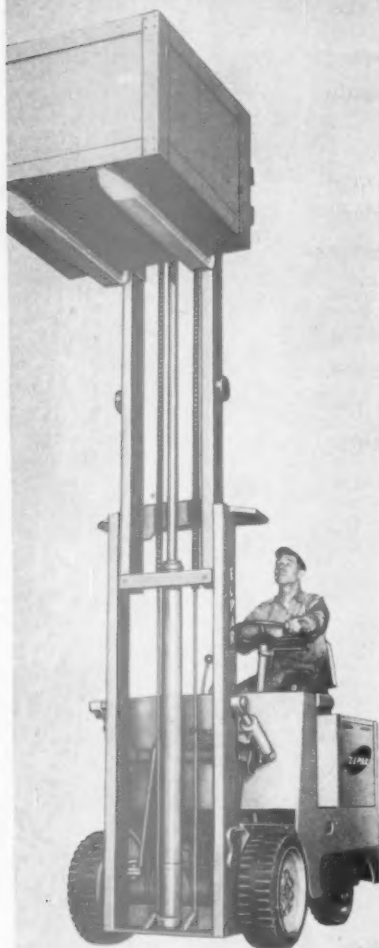
HOWARD S. WRIGHT CONSTRUCTION COMPANY

414 Pontius Avenue

Seattle 9, Washington

Both Alaska's pulp plants—in Ketchikan and Sitka—were constructed by Howard S. Wright, in joint venture with Guy F. Atkinson Company

ACRO-SMOOTH



Slashes Truck Maintenance 55%

• A new concept in truck design . . . with step-less speed control . . . demountable electrical and hydraulic controls . . . easier service accessibility . . . plus, a host of other important features that can halve your maintenance. Eliminate accidents . . . increase work output with ELPAR's new "Acro-Smooth", 4,000, 5,000, 6,000 and 7,000 lbs. capacity.

Write for Complete Details Today!

ELPAR THE ELWELL-PARKER ELECTRIC COMPANY
4037 ST. CLAIR AVE. • CLEVELAND 3, OHIO

Stull of Hercules Retires

PHILIP B. STULL has retired, from Hercules Powder Company upon completion of 33 years as an executive with the company, including 27 years as a member of Hercules board of directors. Throughout 1959, he has been on special assignment. In 1926 when Hercules bought Virginia Cellulose Co., Mr. Stull remained as president, later was appointed general manager of the Virginia Cellulose Dept.

In 1937 he became general manager of the Paper Makers Chemical Dept., and six years later, was elected vice president of Hercules.

General Aniline Reorganizes Pigment Sales Force

The Dyestuff and Chemical Division of General Aniline & Film Corp. has set up a new and separate pigment dept. Dr. ROBERT E. BROUILLARD, recently appointed sales manager—pigments, announces these appointments: Dr. LEON KATZ, product manager, pigments; MAURICE L. MCCORD, Western regional manager; JOHN D. SHAW, Eastern regional mgr., THEODORE B. SMOCK, Midwestern regional mgr., and EMIL A. WICH, mgr., technical services.

Shifts and Promotions at Antara Chemicals

ALLISON K. MAY has been named manager, surfactants and related chemicals and ELDIN S. UNDERWOOD, manager, heavy chemicals, Antara Chemicals, a sales division of General Aniline & Film Corp.

In Antara's field sales force, these changes were made: ALFRED W. PURDY, promoted to Eastern regional manager; JOHN P. MILLER replaces him as sales engineer for the Philadelphia area. JOSEPH A. CZECHOWSKI moves into Mr. Miller's previous post of sales engineer in the St. Louis area. WILLIAM C. BRUNSON transfers from Atlanta, Ga., to New Jersey area and EUGENE M. KENNEDY succeeds him in Atlanta.



Leslie H. Ricketts, Exec. Vice Pres., Lockport Felt Co.

Mr. Ricketts, who is also asst. treas. of the firm, joined Lockport Felt in 1951.



Penaud

Osolin

Ciba Sets Up Pigments Division

P. L. PENAUD is manager of the new division which will handle organic pigments, pigment dispersion and soluble dyes for use in coatings, etc. He is a science graduate of U. of Lyons in France and has been associated with Ciba's pigment activities in technical and sales posts in Western Europe.

H. G. OSOLIN, who will now be supervisor of the pigment division's technical activities in the U.S., has a chem. engineering degree from the Swiss Federal Institute of Technology and has up until now been in charge of the pigments application, technical service and control labs of the patent company, Ciba Ltd., Basle, Switzerland. Headquarters for the new division are at Fair Lawn, N.J.

New Consulting Firm, Dorr Consultants, Formed

A new firm of consulting engineers, Dorr Consultants, has been formed to provide engineering, financial, and management services.

Founding partners are JOHN VAN NOSTRAND DORR, ARTHUR K. DOOLITTLE, DONALD F. OTHMER, W. GEORGE PARKS, and WILLIAM E. RUDOLPH. Headquarters are at 99 Park Ave., New York.

Dr. Dorr, chemist, metallurgist and inventor, is honorary chairman of Dorr-Oliver, Inc. Mr. Doolittle, a chemical engineer, is an authority on solvent-resins, protective coatings and adhesives. Mr. Othmer is head, dept. of chemical engineering, Polytechnic Institute of Brooklyn. Mr. Parks is head, dept. of Chemistry, University of Rhode Island. Mr. Rudolph is a civil engineer.

Six Promoted at Solvay

Six appointments in the sales dept. of the Solvay Process div. of Allied Chemical Corp. are: FRED P. BOEHM and CHARLES E. VARN to asst. sales directors; ROBERT E. CLAGETT to succeed Mr. Boehm at Pittsburgh sales branch mgr., and G. RICHARD BARCLAY replaces Mr. Varn as mgr. of the New Orleans sales branch.

JEROME L. HOCHENEDEL becomes mgr. of Solvay's Houston, Texas sales branch, succeeding S. O. TAYLOR, who has retired; and RICHARD A. MARSHALL is named mgr. of the Organic Chemicals section.

PCF Ups Market Pulp Drying Capacity

Penobscot Chemical Fibre Co. in Old Town, Maine, has installed a new feltless wet end machine and vapor absorption system in its sulfite pulp mill. The \$500,000 expenditure complements its modern chlorine dioxide bleaching system.

The vacuum cylinder wet end by Improved Machinery Inc., was installed by PCF personnel working with Impco engineers. The installation increases PCF's pulp drying capacity of the sulfite mill to 200 tons/day of market pulp.

Stock leaves the bleacher room to pass through a DeZurik consistency regulator delivering pulp at 0.5% consistency to the flat screens, and then is pumped to batteries of Bauer Cleaners. Accepted stock from the cleaners is fed to the wet end cylinder vat.

The wet end is a stainless steel lined vat, 11½-ft. by 124-in. cylinder, one 16-in. dia. stainless steel forming roll and two 20-in. dia. press rolls rubber covered with grooved surface.

First and second presses have 26½-in. dia. grooved cast iron top and bottom rolls. Designed pressure on the first press is 1700 lbs. per linear inch and 2700 lbs./linear inch for the second press. Both presses have air cylinders for lifting and loading. The presses automatically unload if the sheet breaks.

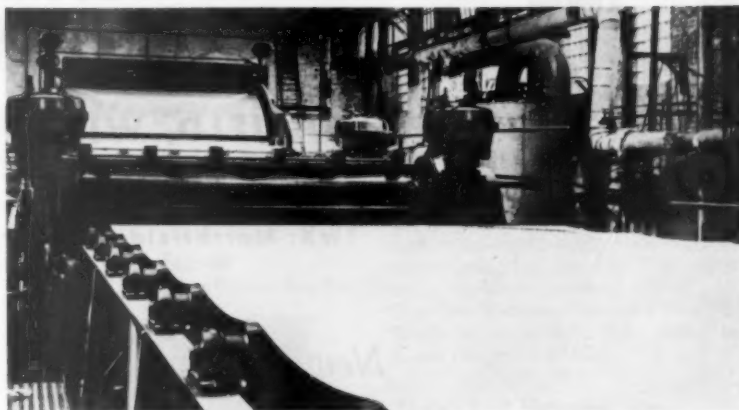
Nine 6½-in. brass table rolls on anti-friction bearings span the distance between the second press and dryers, providing space for future dryers.

A 200 hp Elliott steam turbine drives the cylinder, presses and dryers. Turbine exhaust heats the dryers. Drives on presses and cylinders have Fawick clutches and cone pulleys for variable speed. Air-controlled dancer rolls follow the cylinder, first press and second press, controlling speed of each unit automatically.

The J.O. Ross vapor absorption system and economizer were engineered by Chas. T. Main Co. The system heats fresh outside air, absorbing moisture from the pulp sheet and recovers heat from the moisture-laden discharge air. Air movement is by a 81,200 cfm exhaust fan and a 58,700 cfm for vapor absorption.

Penobscot has also spent an additional \$78,000 for an installation of Bauer Cleaners in its soda mill for ultra-clean pulp bleached in its modern five-stage bleach plant.

Three stages of cleaners plus two Magna cleaners remove shives and dirt. The two No. 641 36-in. Magnas



NEW WET END BOOSTS DRYING CAPACITY of sulfite market pulp to 200 tons/day for Penobscot Chemical Fibre Co. Nine brass table rolls span distance between second press and dryers providing space for future dryers.

in the primary feed remove large dirt pieces. An Ingersoll-Rand 12AFV pump sends stock to the Magnas which handle large capacities at low pressure drop and deliver directly to the 41 Bauers in the primary stage without an intermediate pump.

Primary accepts are sent directly to the 84-in. and 118-in. machine vats. Rejects are collected in a reject trough and pumped by an Ingersoll-Rand 5CORVL pump to the six No. 606

secondaries. The reject trough has a control device to maintain constant water level by admitting dilution water.

Secondary accepts return to the primary feed and secondary rejects are pumped to one No. 606 tertiary cleaner. Tertiary accepts are pumped to the secondary feed, tertiary rejects are discarded.

Designed capacity of the cleaning system is 165 tons/day.

Kimberly-Clark Cuts Mill Water Usage

A new water treatment plant at Kimberly-Clark Corp.'s tissue mill at Fullerton, Calif., is said to increase water re-use from 13 times to over 80 times. The water plant cost \$150,000. The cost of its operation cancels out the savings achieved. This is reputedly one of the lowest water-using paper mills in the world. Local dignitaries and the press were invited to lunch at the Kimberly-Clark plant recently to celebrate inauguration of the treatment system.

After a plant tour, the guests were treated to lunch in the employees' cafeteria. They were informed on the functioning of the water system by Thomas H. Howe, plant manager, Marvin Gade, mill superintendent, and Chemical Engineer, Archie LeCompte, who did most of the designing of the system.

Water being a vital element in the life of semi-arid Southern California, the community leaders were very in-



Howe LeCompte Gade

terested. They heard that the new system is only one of its kind in use.

They were told the Fullerton mill will use only 7% as much water as a comparable mill located in an adequately-watered location; and that with the system in use, a plant six times the size of the Fullerton plant could be operated on the amount of water consumed.



FELKER BROS. MFG. CO.

MARSHFIELD, WISCONSIN

TELEPHONE: FULTON 4-3121

TWX: Marshfield, Wis. 8912

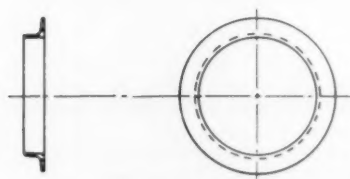
New Stainless Steel . . .

ANGLE FACE RINGS - ANGLE TYPE STUB ENDS

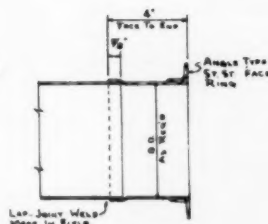
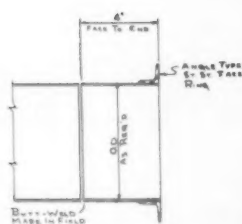
REWELD BANDS

Designed and Manufactured

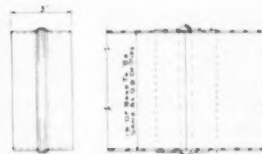
**To Combat Failures Caused By
Excessive Vibration on Process Lines**



Angle Face Rings



Angle Type Stub Ends



Reweld Band



ASK FOR BULLETIN 505-A.

Bale Lifter

... 5,000-lb. Capacity



Applications: For lifting and dumping paper bales into the pulper.

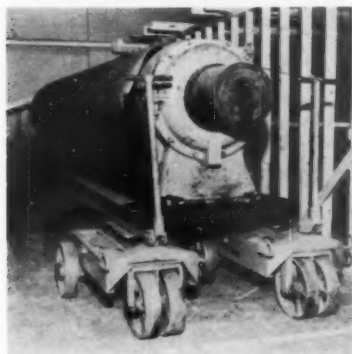
Advantages: The reverse of the roll-lowering table, the Murco bale lifter is a new departure in reducing the pulping operation. The table is raised and lowered by foot-controlled switches.

Specifications: The table is 80 by 84 in. and the lifting distance 40 in. from floor level. Lifting capacity is 5,000 lbs. The unit tilts 45° beyond horizontal center. The hydraulic unit that activates the machine is equipped with a 3-hp motor.

Supplier: D. J. Murray Mfg. Co., 1002-1024 Third St., Wausau, Wis.

Turntable Roll Dollies

... Easy Maneuvering Possible



Applications: For handling huge press rolls and intermediate calender rolls through the plant.

Advantages: It is said that with the built-in turntables and by using two or four dollies even the longest and heaviest rolls can be safely maneuvered around corners.

Specifications: The units have capacities ranging from 8,000 to 20,000 lbs. each. Atop the free-swiveling turn-

table is a 10- by 30-in. plate into which are drilled slotted holes for bolting the rolls in place.

Supplier: Lewis-Shepard Products Inc., Dept. R9-42, 125 Walnut St., Watertown, Mass., Tel: WATertown 4-5400.

Pressure Pulp Screen

... for Sensitized Papers



Applications: For removing pulp knots or foreign matter from fiber in suspension in the manufacture of sensitized papers.

Advantages: Selectifier No. 1698 (now in operation at Hartford City Paper div., Hartford City, Ind., U.S.A.) operates under pressure and is full of stock at all times.

Specifications: The unit (one of the 12-P models recently introduced) is a low-capacity unit designed to handle a maximum of 1,200 gpm at 0.5% consistency.

Supplier: Black-Clawson Co. (Shartle div.), Middletown, Ohio, U.S.A.; and Black-Clawson International Ltd., 18 Savile Row, London W. 1, England.

Latex Strip Coater

... Top and Bottom Application

Applications: For manufacturers of self-seal paper bands.

Advantages: Coating locations of the bank of strip rollers can be quickly adjusted to permit making a wide range of self-seal bands. Sheets are fed manually into the coating section of the unit, which automatically applies latex to top and bottomside, then carries the sheets through electric ovens. It is said to require but a few minutes to change coating locations of the strip rollers. Remoistening strip

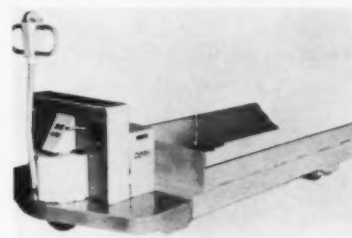
glue can also be applied to one side only.

Specifications: Bands can be made up to 60 in. in width. Automatic feeding can be furnished. Production speeds of up to 100 fpm are possible. Coating thickness is adjustable. Variable-speed control permits synchronization with other equipment. Adhesive tank is removable for cleaning. Strip rollers are available in assorted widths.

Supplier: Potdevin Machine Co., 285 North St., Teterboro, N.J., Tel: Hasbrook Heights 8-1941.

Paper Roll Handler

... Has 8,000-lb. Capacity



Applications: For handling paper rolls to and from storage.

Advantages: Rolls are carried horizontally on two 16-in. wide contour forks that rise 4 in. to provide adequate clearance. Rolls can be lifted directly from the floor or from cradles. This addition to Clark's line of Powr-worker electric hand trucks is equipped with electric switches that, according to the manufacturer, make it impossible to direct both forward and reverse current to the drive motor at the same time. Brakes are automatically applied when the steering handle is in either vertical or horizontal position, and the handle returns to vertical position when released by the operator. When brakes are applied, the power circuit is automatically broken.

Specifications: The battery-powered walkie truck handles rolls of up to 96 in. in length and 60 in. in dia. Weight capacity is 8,000 lbs. The unit is available in lengths of from 60 to 96 in. The battery and all operating controls are located in a compact power unit. The truck will travel 1.9 mph when loaded. Either a single- or double-row 12-volt battery can be used. Without battery, the weight of the truck is about 1,800 lbs.

Supplier: Clark Equipment Co. (Industrial Truck div.), Battle Creek, Mich., Tel: Woodward 2-6561.

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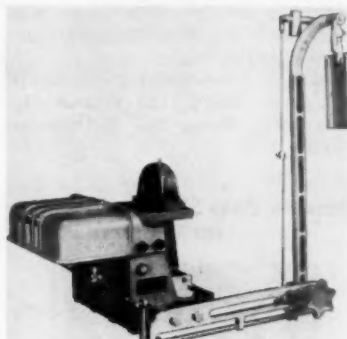
VAPO SYSTEMS
128-32 W. Home Ave.
Villa Park, Ill.



NEW EQUIPMENT AND SUPPLIES

Felt, Wire Air Guide

... for Speeds up to 3,000 fpm



Applications: For felt and wire guide on machines of between 120 and 200 in. in width.

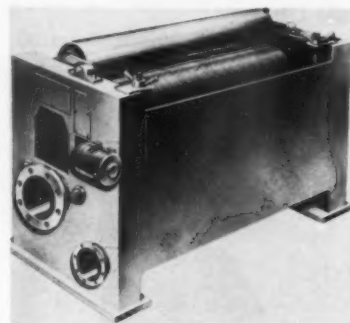
Advantages: This Gilbert & Nash unit is said to fit in any space where a mechanical guide is installed; in most instances, it can be mounted using existing guide roll, bearings and back-stand. The guide moves laterally in either direction by air pressure and is held securely in place. There are no springs to pull the guide roll with possible loss of wire or felt.

Specifications: Model 560-A, in the event of air supply failure, holds the guide roll stationary, and the wire or felt is guided manually.

Supplier: Appleton Machine Co. (contact Harry W. Brown, Gilbert & Nash Co.), 618 So. Oneida St., Appleton, Wis., U.S.A. and Appleton International S.P.A. via Fontana 11, Milano, Italy.

Pulp Decker

... Free-Flow Cylinder Mould



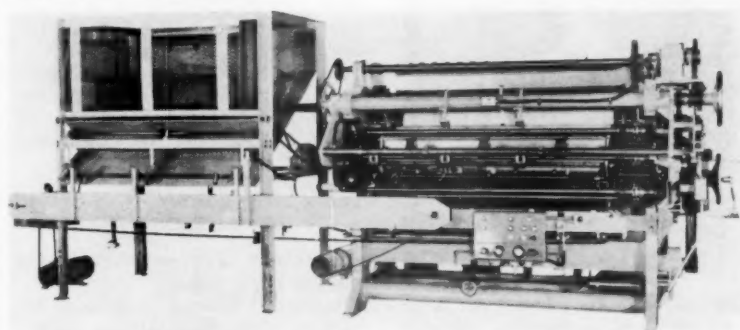
Applications: For such mill processes as dechlorinating, decausticizing, deinking, dewatering, thickening, white water recovery, wet lap and linerboard sheet formation, etc.

Advantages: The Gravi-Decker's free-flow cylinder mould is said to stay clean longer because it has no central shaft, spiders or winding wires; and when cleaning is necessary, the mould need not be removed from the vat. Facing wire is mounted on a corrugated stainless steel drum, eliminating need for a backing wire.

Specifications: With drive motor mounted on the end frame, the unit is self-contained. The master panel can be removed and mounted separately if conditions require. All parts in contact with stock if not stainless, bronze or plastic are rubber-covered.
Supplier: Koehring-Waterous Ltd., P.O. Box 607, Brantford, Ont., Canada.

Automatic Core Loader

... Exclusive Roller System



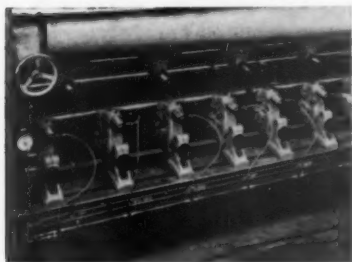
Applications: For feeding and positioning cores.

Advantages: Using a simple conveyor and pushing action with no reciprocating mass, Model 2765 is said to realize higher speeds—up to 15 long cores per min. It is designed to coordinate simply with an automatic winder and, according to the manu-

facturer, is equipped with an exclusive roller system to guide the mandrel into the incoming core. Cull discharge and storage is in unit. It has log storage or slit roll discharge.

Supplier: Paper Converting Machine Co., Green Bay, Wis., Tel: HEmlock 7-7601; and Leo Campagnano, Via Borromei 1 B/7, Milan, Italy.

Multi-Shear Slitter Roll
... for Pneumatic Winders



Applications: For cutting the web to specified widths or for trimming.

Advantages: Shear-cut slitting members are said to have been greatly simplified in operation. The unit combines the ease of set-up inherent in the score-cut slitting system with the advantages of shear cut.

Specifications: Cutting bushes are placed over the full width of the slitting shaft in such a way that clearance remains between each bush. Should the next slitting width not fall into one of the cutting grooves, the slitter roll is deflated and the respective bushes shifted to correct position. Air pressure check every two weeks is said to be sufficient.

Supplier: Jagenberg-Werke AG, Himmelgeisterstr. 107, Düsseldorf, W. Germany, Tel: 33 01 41; and American Pulp & Paper Co. Inc., 300 Fourth Ave., New York, N.Y., U.S.A., Tel: ORegon 4-3920.

Printability Tester
... Specifically for Paperboard

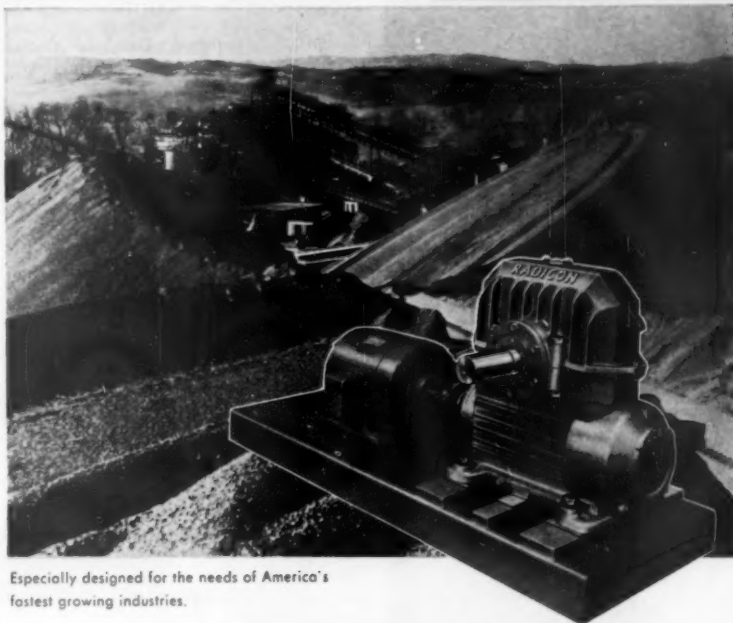
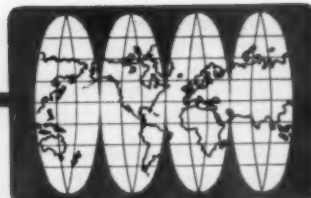


Applications: To accurately predict the printability of paperboard.

Advantages: The Print Smoothness Tester is essentially a bench model gravure press that provides a numerical smoothness rating by counting the dot misses through the use of a specially designed template. This is said to eliminate entirely problems of subjective judgment. Ink film remains constant for a series of prints without the need for adding makeup ink. Pressure is obtained by spring- or air-

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"Eliminate drive design problems with the versatile new Radicon Complete Drive—just position—set six bolts and you're ready for service."

There's *no* do-it-yourself involved. Simply select the drive (easy as a gearmotor)—and set! Radicon reducers and motors are already carefully shimmed and aligned on heavy fabricated steel base plates of double box construction, firmly ribbed for rigidity. This means minimum stress at the flexible coupling—low maintenance, with complete versatility for service.

Fan-cooled Radicon Speed Reducers, such as type RHU in the above Complete Drive, are being specified for replacement and OEM in many industries these days. They have learned that Radicons are designed, not for show—but for rugged work in all extremes of temperature, dust, dirt and rain.

Immediate delivery 3" to 12", all standard ratios from 5:1 to 60:1. Radicon complete drives supplied by all authorized David Brown factory branches and distributors.



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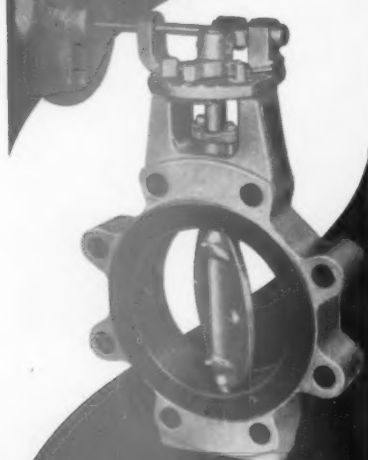
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- FASTER



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ENGINEERING FACTS

For control of air, gases or process fluids Rockwell Wafer Butterfly Valves give you these installation, service and maintenance advantages not found in other types:

- 1—Narrower body, less length and simpler construction—make valve lighter, easier to install in less space at lower overall cost.
- 2—Equalized pressure on valve disc makes opening and closing simple. Minimum pressure drop.
- 3—Rubber, Neoprene, Hycar, Viton or other resilient synthetic seat forms positive drop-tight seal on shut off and a tight gasket seal between valve and pipe flanges. The "Keelok" seat is easily removable.
- 4—No fouling—no clogging—valve is self-cleaning.
- 5—Valve may be operated manually or by automatic remote control. Sizes—from 2" to 48".

Write for Bulletin 583.

W. S. ROCKWELL COMPANY
2510 Eliot St. • Fairfield, Conn.

NEW EQUIPMENT AND SUPPLIES

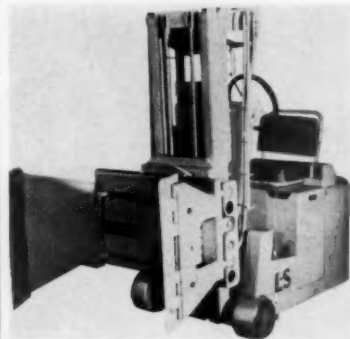
loading rather than by clearance. No adjustments in pressure are necessary for changes in caliper.

Specifications: Shipping weight is 400 lbs. The unit measures 54 in. x 25 in. x 27 in.

Supplier: Diamond Gardner Corp. (Gardner div.), 407 Charles St., Middletown, Ohio, Tel.: 2-2772.

Paper Roll Grab

... with 180° Rotation



Applications: For use on fork trucks in paper manufacturing and warehousing.

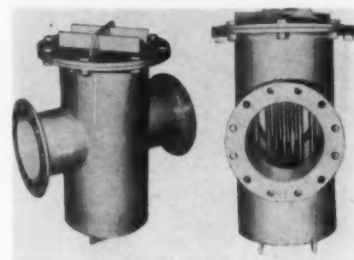
Advantages: This attachment to the Lewis-Shepard Model J sit-down rider-type fork truck combines clamping and rotating functions to make a single integral paper roll-handling unit. The 180° rotation allows the operator to set the roll on either end, and the thin arm design is said to make it possible to break out vertical rolls from the most tightly stacked freight cars and warehouses.

Specifications: Rolls in the range of 23 to 40 in. may be handled in both vertical and horizontal positions.

Supplier: Lewis-Shepard Products Inc., 125 Walnut St., Watertown 72, Mass.

Magnetic Bowl Traps

... in Seven Standard Sizes



Applications: For simple installation in slurry or process lines.

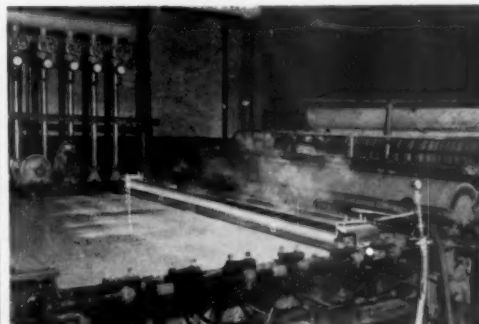
Advantages: The traps are of larger diameter, more compact design and lower cost than were formerly available. The non-electric magnetic tubes forming the core of the trap are said to efficiently arrest and retain large or small pieces of tramp iron, effectively guarding filters, pumps, refiners and other equipment, thus insuring against intrusion of ferrous contaminants.

Specifications: The seven standard sizes range from 6 through 18 in. in 2-in. increments; the traps are able to withstand pressure to 75 psi and temperature to 650° F. Various types are available for specific applications.

Supplier: Eriez Mfg. Co., Erie 6, Pa.

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(2nd Edition) by Anthony Marinaccio, Supt. of Schools, Davenport, Ia. 6 x 9, 320 pages, Ills. \$6.00, Van Nostrand Publishing Co.

Long recognized as an outstanding guide to the techniques of printing and its related arts, this valuable book has now been completely revised to include latest developments in graphic arts materials and methods. Every chapter has been brought completely up to date, and new drawings and photographs added.



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SITKA EQUIPMENT

Continued from page 95

Flohr & Co. Metal Fabricators: MgO washer tank, side hill screen
Nash Engineering Co.: MgO washer vacuum pump
American Blower Corp.: Washer drives
W. P. Evans & Sons Ltd.: Rotabelt
Northwest Filter Co.: Water treatment equipment
H. K. Porter Co. Inc.: Diesel-electric locomotive
Concrete Technology Corp.: Pre-cast concrete slabs
Consolidated Western Steel Div.: Steel water conduit

GENERAL CONSTRUCTION: Sitka Pulp Mill Builders (Howard S. Wright & Co. Inc., Seattle, and Guy F. Atkinson Co.); included all buildings, plant site preparation, water system dam (low) and tunnels, most equipment installation.

BOILER INSTALLATIONS: C. C. Moore & Co., Engineers; included piping and equipment in boiler house, evaporator and acid plants, turbine room.

DIGESTER INSTALLATION: Chicago Bridge & Iron Co.; including accumulators, evaporators and 37 steel tanks.

ELECTRICAL INSTALLATION: City Electric of Anchorage.

PIPING INSTALLATION (EXCEPT POWERHOUSE), SHEET METAL, ROOFING: Northern Mechanical Co.

STOCK PREPARATION INSTALLATIONS: Stebbins Engineering & Mfg. Co.; included tile linings, screen room deckers, high-density stock storage chest; rejects sump, unbleached stock storage chest, bleach towers, bleach washers seal tanks, machine chest, bleached and unbleached stock storage chest and tanks, seal and machine room pits, chests.

PROTECTIVE BRICK LINING: Chemical Lin-

ings Inc.; towers, acid filters, weak red liquor tanks.

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INSULATION: Armstrong Cork Co.

ELEVATOR INSTALLATIONS: Otis Elevator Co.

EXTERIOR PROTECTIVE MASTIC COATINGS: Earl Faint Co.

MACHINE SHOP: Hallidie Machinery Co.

MEETING DATES CALENDAR

February 15-17
1960 Forest Management Control Conference
 Purdue Memorial Center, W. Lafayette, Ind.

February 18
Michigan Division PIMA
 Hotel Harris, Kalamazoo, Mich.

February 20
28th Annual Fernhopper Banquet
 Oregon State College School of Forestry, Corvallis, Ore.

February 22-25
Paper Week (APPA, SAPI, TAPPI)
 Waldorf-Astoria and Commodore, New York, N. Y.
 (APA—Hotel Roosevelt)

March 15
Ohio TAPPI (Two-Phase Flow in a Wet Web)
 Manchester Hotel, Middletown, Ohio

March 22-23
Folding Paper Box Assn. of America

(Annual Meeting)
 Ambassador Hotel, Los Angeles, Cal.

March 26
Philadelphia Conference of the Graphic Arts Industry
 Benjamin Franklin Hotel, Philadelphia, Pa.

March 27-30
National Paper Trade Assn. (Annual Meeting)
 Waldorf-Astoria, New York, N. Y.

March 29
Golden Gate District TAPPI (Recent Advances in Materials Handling)
 Dinner Cottage Restaurant, San Leandro, Cal.

April 6-7
Ninth Annual Forestry Symposium
 Louisiana State Univ. School of Forestry, Baton Rouge, La.

April 23
Michigan PIMA (Ladies Night)
 Hotel Harris, Kalamazoo, Mich.


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KNOX WOOLEN COMPANY

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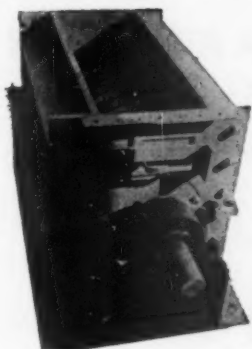
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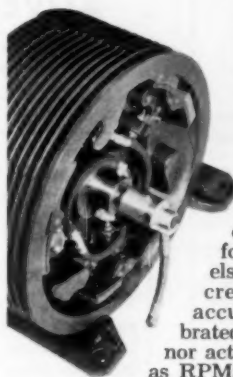
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Expanding dye and chemical sales to the paper industry offer opportunities for experienced and capable men to augment our present sales staff. Applicants should have prior color sales experience to this industry or be well versed in the application of dyes to paper. Remuneration will depend on ability and experience. Please submit complete resume and salary requirements. All inquiries will be reviewed and answered.

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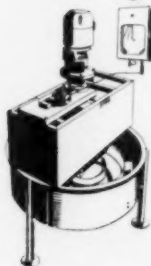
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Write for **FREE** literature and "Flow Stoppage Report." PneuBin engineers will make recommendations without obligation on your part.

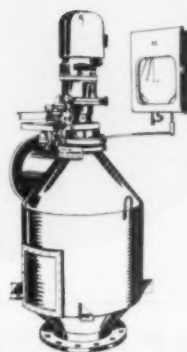
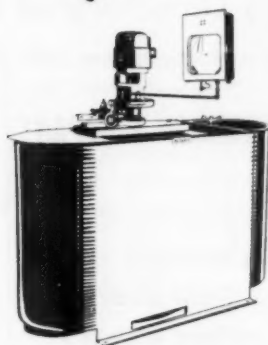
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Pan Type



Pipe Line Type



*Stuff
Box
Type*

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There's a variety of DeZurik Regulators with a type to fit almost every installation! This versatile regulator, with its highly responsive mechanism combined with modern instrumentation, achieves maximum accuracy with minimum attention.

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The Last Word **PULP & PAPER** Editors' Page

Introduction and Congratulations

PULP & PAPER, and its companion publication, PULP & PAPER INTERNATIONAL, are pleased to report this month staff changes and a staff addition—all designed to meet the rapid growth needs of these publications and to provide better services.



Admen: Johnson Anderson Burton

First, welcome to a new member, John W. Anderson, 31 years old, who has succeeded Kenneth A. Johnson, 32, as district sales manager in the Cleveland, O., office (4500 Euclid Ave.). Mr. Anderson was formerly Cleveland district manager for *Appliance Manufacturer*, a trade magazine. He also was formerly advertising manager for Handley Brown Co., Jackson, Mich. He studied at Jackson Junior College and Michigan State Univ., where he earned an A.B. degree in journalism. He lives in Shaker Heights, O.

Congratulations to Ken Johnson, who in his seventh year with us, moves to greater responsibilities in our New York office, working closely with Ralph R. David, sales manager. Mr. Johnson was formerly with Nekoosa-Edwards Paper Co. and his father is a pulpwood farmer (besides farming other crops) in northern Wisconsin. Ken is a veteran of the U. S. Army Intelligence Branch of the 3rd Armored Division. He studied at the Universities of Wisconsin and Arizona, where he played varsity baseball. He is planning to live in Scarsdale, N.Y., with his family—wife, Patricia, son, Erik Albert, and daughter, Karen Amy.

Leigh Freeman, who is taking on new research responsibilities, is here holding plaque presented by Eastman Research Organization indicating the exclusive franchise in this field for readership studies held by PULP & PAPER.



Also congratulations to Leigh Maynard Freeman, district manager in New York for the past two years, who is promoted to central offices for Miller Freeman Publications in San Francisco where he will be responsible for a newly expanded department of research for advertising service. He is a 1952 graduate of Stanford Univ. in economics and journalism and served four years in Naval Intelligence, attaining lieutenant j.g. rank. On June 7, 1958, he was married to Virginia Marion of Seattle.

We also want to make amends with belated congratulations and welcome (on this page) to District Manager Roberts (correct with an s) H. Burton of our Chicago office (1791 Howard St.). He has been doing a splendid job in his territory for the past nine months. Bob graduated from Northwestern University with an A.B. degree. He was in advertising sales for eight years with Thomas Publishing Co. He resides in Western Springs, Ill., with his wife, Jane, and son, Roberts G.

"Warm" Welcome at Sitka, Alaska Greets Western Editor Lou Blackerby

Louis H. Blackerby:—"Sitka has been sufficiently overcast that no mail has gone out for three days, and no mail has arrived during the last two days."



Field editors endure "hardships" not common to many other vocations. PULP & PAPER staff editors are no exception. And, although their stories may not bring a tear to the eye, their tribulations are often quite interesting.

Far-Off Alaska almost became really Out-in-the-Cold Alaska for Louis H. Blackerby when he flew there recently to get the exclusive story and pictures of the new Japanese mill—Alaska Lumber & Pulp Co., in the little seaport of Sitka.

For a confused hour or two there was seemingly no place for him to turn. When his plane rolled (or slid) to a stop at the local air strip, our Mr. Blackerby received this shattering news:

The Sitka Hotel—his adopted home during the mill visit—had celebrated statehood with its own brand of fireworks! The inn was still a smoldering ruin after a spectacular blaze early that very morning.

This was the little town's only hostelry and Mr. Blackerby had visions of sleeping on a very clammy and cool beach.

But, with the ingenuity that comes to editors who travel to far-away places, as he has done so often, Mr. Blackerby finally decided to make his plight known to officials of the pulp company.

"As a result of their wonderful cooperation," he wrote, "I was soon the sole occupant of the company penthouse and on the following day I was moved in with Leslie Bickell, ALP technical director, sharing his apartment."

A lover of the forest and life in the woods, Mr. Blackerby enjoyed his Alaska travels to the utmost. His 20 years and more of background in mills and logging camps made him right at home with these pulp industry pioneers of the Northland.

"Resident Manager Tom Stein and all others have been most cooperative," he wrote. "This is for sure an interesting operation, and I was able to accomplish considerable under the circumstances (Eds. note—the UNDERSTATEMENT of 1960!)"

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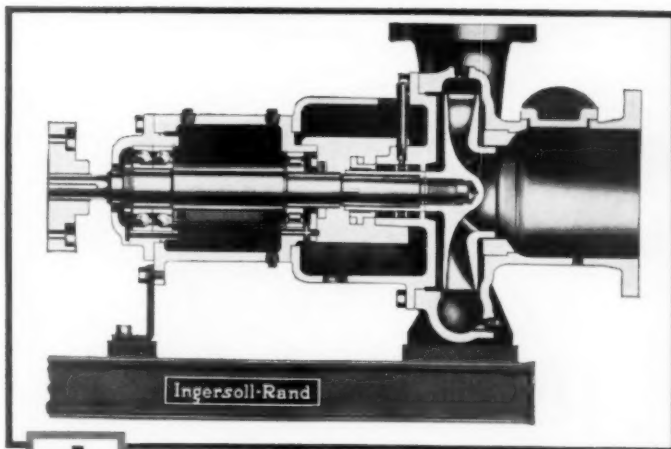


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